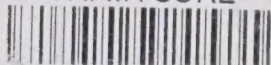


NUTRITION *in* PUBLIC HEALTH

By
LUCY H. GILLETT

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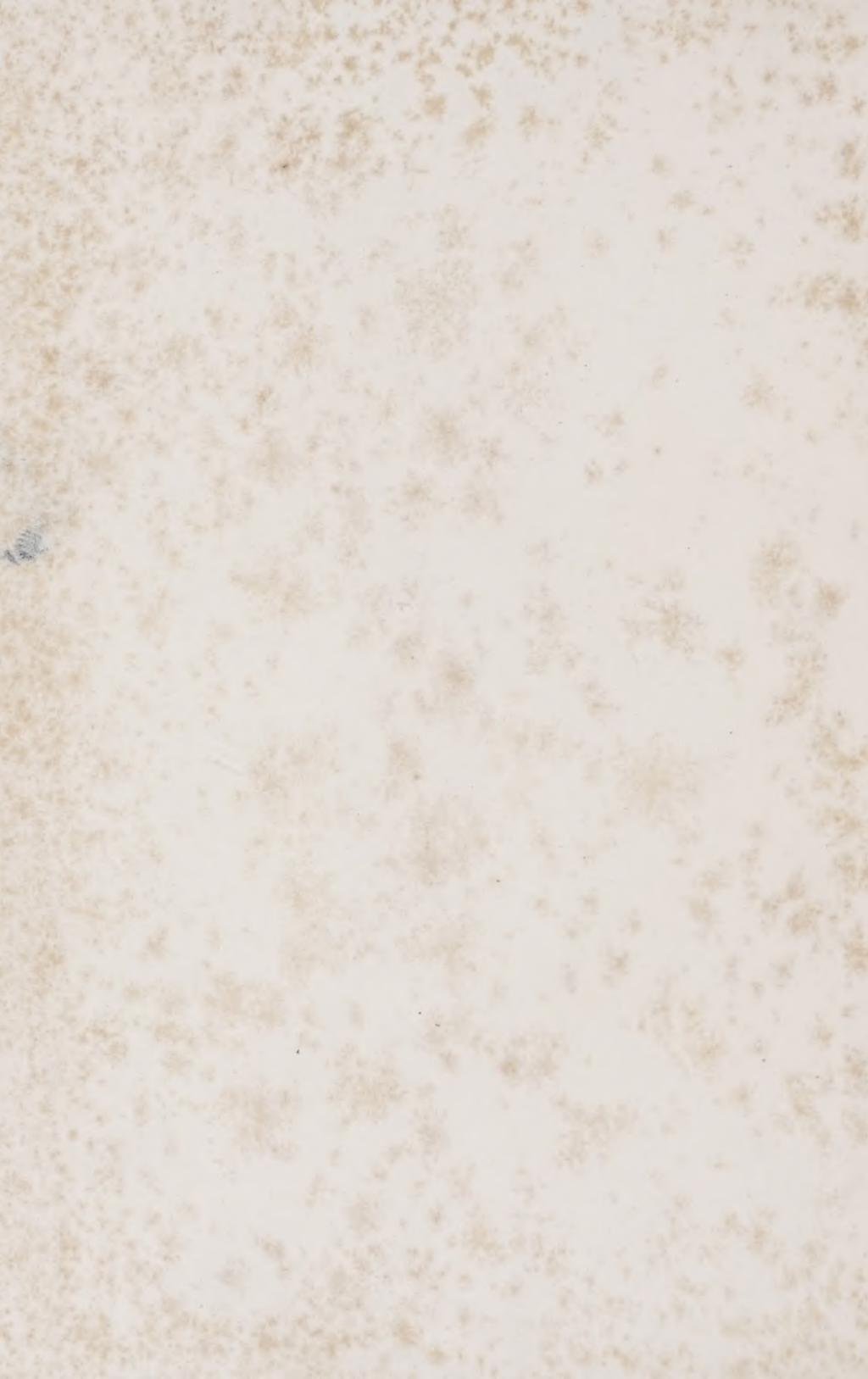
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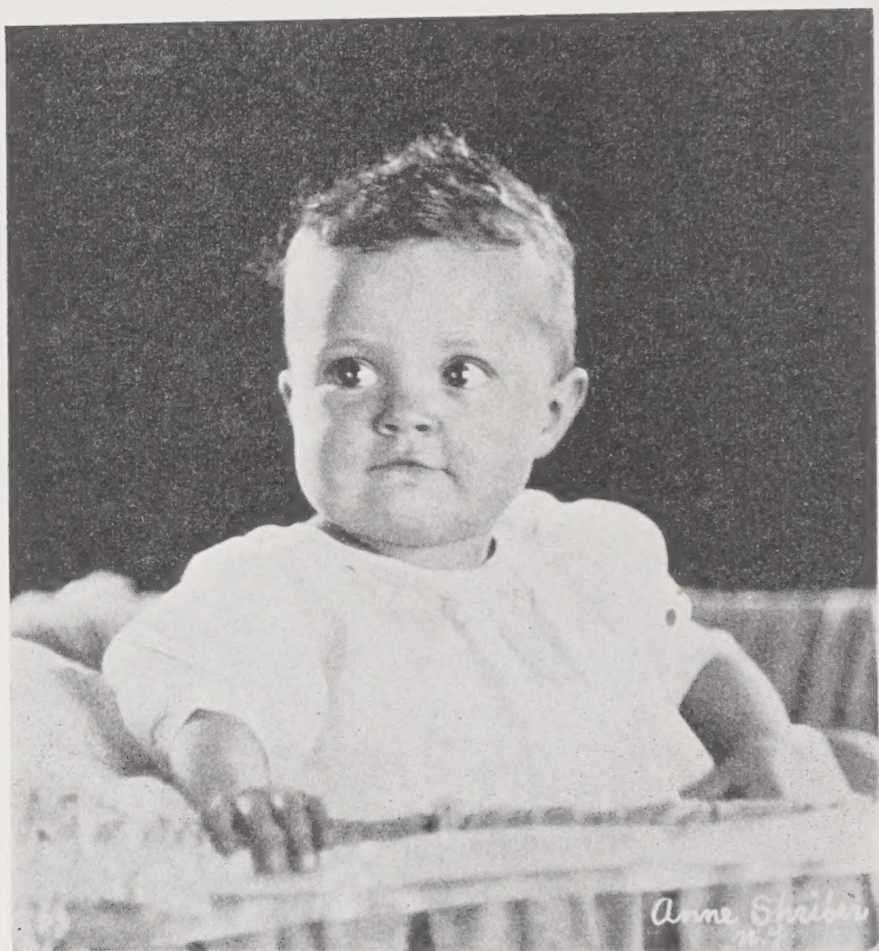
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GOOD NUTRITION IS ESSENTIAL FOR GOOD HEALTH
FROM BABYHOOD THROUGHOUT LIFE

NUTRITION *in* PUBLIC HEALTH

By LUCY H. GILLET, M.A.

*Formerly Director, Nutrition Service,
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W. B. SAUNDERS COMPANY

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1946

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PREFACE

A COMPLETE nutrition program must reach the young and the aged—those seemingly in good health as well as those who are known to be below par physically. Many avenues of approach must be used, including homes, schools, health centers, industrial plants, and newspapers. A nutrition program can be successful only when everyone has the wherewithal to buy adequate food for good growth and good nutrition. This may require social and economic adjustments.

Such a nutrition program can be carried out successfully only as a joint undertaking, with every person interested in the health and welfare of the community participating. The rôle of any one individual in such a program will depend on other personnel available. Leadership may rest with the state or local department of health, in a state or local nutrition committee, or in an individual who is especially interested in nutrition. Or the nurse may be called upon to take the lead in creating a nutrition consciousness and in forming a program. Whoever assumes leadership should have a thorough grasp of the relationship of food to nutrition and the widespread influence of nutrition on the welfare of the country, as outlined in Chapter I.

In any nutrition program, the public health nurse has a specific function in applying the newer knowledge of nutrition as a means of increasing the vitality and resistance of those whom she serves and, ultimately, of reducing the incidence of disease in the population of the country as a whole.

This opportunity carries with it an increase in responsibility. As outlined in the Public Health Nursing Curriculum Guide, issued by the National Organization for Public Health Nursing, the duties of the nurse may include the instruction of parents,

teachers, and others in the basic principles of nutrition; assisting families in planning health protective meals and food budgets in accordance with available means; and supervising the diets of those whose physical condition requires special attention.

This is not an easy task. Changes in food habits must be made in a large number of families if meals are to be health-protective. Substituting new habits for old is not a quick-change process. Family plans, habits, and attitudes are involved and not more than one or two changes can be suggested at a time if confusion and emotional stress are to be avoided.

Guiding families in the development of good food habits requires a knowledge of nutrition principles; equally essential is the ability to make practical suggestions for the application of this knowledge in such instances as:

- Planning family meals that will prevent hidden hungers.

- Packing a lunch box to prevent easy fatigue during the afternoon, possibly preventing disabilities later in life.

- Adjusting food habits of those who are unfamiliar with our market conditions, so that the health of the family may be protected with the fewest possible changes in food customs.

- Guiding pregnant women, young girls who want to keep slender, those who must rebuild wasted tissues, and others, in food selection to suit their particular needs.

- Teaching mothers how to prepare vegetables so as to preserve minerals and vitamins, the loss of which may lead to deficiency diseases.

- Using dimes and dollars so as to get maximum health protection.

These are only a few of the situations in which the nurse has an opportunity to influence the health of those she serves. This book has been written in the hope that it may remind her of many similar instances in which the application of nutrition knowledge can be used to prevent disabilities and reduce deficiency and degenerative diseases.

Chapters II through IV give a review of nutrition essentials for

various age groups while Chapter V may suggest ways of protecting the health of the family through intelligent meal planning. Chapter VI should help in adapting these suggestions to families with characteristic food customs. Chapter VII includes ways of protecting the nutrition of those who are on special diets. Chapter VIII is included as an aid in determining whether a family's income is adequate for good nutrition and Chapters IX and X will help in selecting and preparing food to get maximum food value.

The subject has been approached chiefly from the standpoint of the mother or housewife, as one can be of greatest assistance in helping to overcome obstacles which stand in the way of good food habits when these obstacles are seen as they appear to the woman in the home.

Not all of the information included in these pages will be used in any one series of lessons, in any one family, in any one community; probably not by any one nurse. There may be no formal nutrition teaching. Most effective work in changing food habits is often done by making appropriate suggestions or asking pertinent questions at the "right" time. If a nurse, for instance, arrives at a home to find bottles of milk standing on the porch, the vegetables much over-cooked, or the lunch box in the process of being packed, chiefly with sweet foods, she has excellent demonstration material at hand. Problems vary from family to family and anyone serving as an adviser on nutrition problems must be prepared to meet emergencies as they arise. May this book help the nurse to foresee and forestall emergencies.

The author wishes to take this opportunity to acknowledge a debt of gratitude to the large number of co-workers with whom she has been associated during the last thirty-five years or more. Without the inspiration of their devotion to the cause of nutrition during those pioneer days when few were interested in the influence of food on health, this book could not have been written. Each nutritionist with whom she has been closely associated has contributed more than she will ever know. Space does not permit the naming of each of them but sincere gratitude is expressed for the constant assistance of Miss Lillian Anderson who has given so generously of time, thought, and ideas. To

Miss Joelle Long, Miss Bertha Holman, and Miss Julia S. Taylor grateful acknowledgment is made for material contributed. The picture on page 64 is reproduced through the courtesy of the magazine "Baby Talk."

Sincere thanks also to: Mrs. Anna dePlanter Bowes for her always ready response to requests and her generous offer of the use of any of her material that met a need—the need has been great and frequent; to Miss Natalie M. Dodd for her quick and painstaking reply to an emergency call; to Miss Marjorie M. Heseltine for many timely suggestions; to those who provided much material for various sections in the chapter on racial food customs—Mrs. Marie T. Colucci, Dr. Marie S. Gutowska, Miss Vera J. Lowenbach, and Miss Ethel Maslansky; and to Miss Miriam Birdseye for the generous loan of photographs. Miss Ella S. Leonard, a very dear friend, deserves a special word of appreciation for her unceasing interest and helpfulness.

LUCY H. GILLET

September, 1946

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CHAPTER I

THE WIDESPREAD INFLUENCE OF NUTRITION

*"The growing evidence that malnutrition is a problem of such magnitude that it affects large numbers of people, presents a challenge to public health authorities. It also carries an obligation, for public health is charged with the responsibility for protecting the health of its people."**

A New Concept of Health

THE NEWER KNOWLEDGE OF NUTRITION. The application of the newer knowledge of nutrition promises a healthier and a longer life with so much physical and mental vigor and alertness that even an optimist would have thought the promise a dream ten or fifteen years ago. The prospect of this more useful life is changing the concept of public health and widening its field to include the prevention of those minor disabilities which hitherto have received little attention. Yet they cause easy fatigue, lower the efficiency of the individual, and thus threaten his standard of living and impede progress in national welfare.

No area in the field of public health today offers richer opportunities for constructive service than the application of the newer knowledge of nutrition and the public health nurse is in a strategic position to play a very prominent part in bringing about this promised era of health and prosperity.

The objectives to be reached in a constructive program are:

Better nutrition for mothers during pregnancy and lactation which will mean stronger, better developed, and healthier babies.

* Schrell, W. H., Medical Director, U.S. Public Health Service: Nutrition and Public Health. *J. Am. Dietet. A.*, 21:18, 1945.

Better nourished children which will mean greater vitality and endurance for adults in later years.

An increase in the number of useful, vigorous years for the adult which will help him to attain a richer, fuller life and a postponement of, and a decrease in, the infirmities of old age.

Less chronic invalidism and fewer minor disabilities, the elimination of specific diseases, such as rickets and pellagra, and a decrease in other diseases, especially those of the digestive and respiratory systems, which will mean less absenteeism.

Greater mental stability and fewer mental illnesses which should decrease problems caused by maladjustments and emotional disturbances.

OPTIMUM NUTRITION. The ultimate goal of these objectives is optimum nutrition but some of them may be reached only as the cumulative effects of well-nourished tissues are passed on from one generation to another. Several generations may be needed to attain the highest peak of nutrition but the majority of the objectives may be reached during the lifetime of one individual if conditions are favorable from the beginning to the end of life.

Adults who have not had the benefits of the newer knowledge during their earlier years need not be discouraged by knowing that acquiring a good nutritional condition is a life-time job, for they are still young enough to be materially helped if they apply the knowledge NOW.

Hidden Hungers

Defects which occur when food furnishes too small an amount of one or more essential nutrition factors are very aptly referred to as "hidden hungers." These "hidden hungers" are now known to be responsible for many of the minor disabilities which lower resistance, influence mental and physical abilities, and often result in illness. The elimination of these hidden hungers is fast becoming a major aim in public health programs today.

Since defects may start at any time in life, early or late, food practices bear reviewing, even though a person seems in excellent health. A rosy-cheeked child, for instance, who is seldom ill, may be harboring a hidden hunger in his tissues which will have no ill-effect until he becomes an adult. Then, under the strain of some severe physical or mental experience extending over a period of months or years, a breakdown may occur. Or an adult with well-nourished tissues may change food choices so that he does not get all the essential factors for good nutrition. Yet, because of the reserves in his tissues, he may be able to live on this poor diet for some months before he begins to lose his pep and energy. Both cases illustrate the need of an occasional review of foods eaten so as to discover deficiencies before they cause serious results.

INFLUENCE OF HIDDEN HUNGERS ON EFFICIENCY. Deficiencies in food factors and the defects which follow are bound to show their devastating effects eventually in the amount and quality of work a person can do and in his attitude toward life as well as in his health.

Where the influence of food has been studied among industrial workers, those who had good diets were more efficient, had fewer accidents, became less tired, were less frequently ill, lost fewer days from work, and produced more goods than those whose diets contained too small an amount of one or more nutrition essentials. Their goods also showed a better quality of workmanship. A deficiency of only one factor, such as vitamin A or niacin, may change the outlook of a person from one of optimism to one of depression or so ruin his disposition as to make it difficult for him to work well with his associates. Dr. T. D. Spies, of Birmingham, Alabama, has reported amazing recoveries in patients who were too nervous to stand the strain of work but who were relieved in a few days, even in a few hours in some instances, through the use of niacin. Remarkable results through adjustments in food have also been obtained at the Eastman Kodak Company in Rochester, New York, and in many other industrial plants.

EARLY DISCOVERIES OF DEFICIENCIES. It is needless to call at

tention to the amount of suffering and the misfortunes which might be prevented for the individual if hidden hungers and their resulting disabilities could be avoided, or even discovered in their early stages.

A study of diets will show deficiencies in food eaten, but more than perfectly planned meals is often necessary. Defects may occur if some unfavorable condition, such as diseased tonsils or carious teeth, or an emotional disturbance, interferes with the utilization of food. Good meals are essential, but they do not guarantee that a person is in no danger from hidden hungers. Diagnostic methods, such as those used to test the hemoglobin level, are needed to show whether or not the tissues are well-fed and such tests are already under way.

USE OF TESTS. Dr. H. D. Kruse, of the Milbank Memorial Fund, has been working on tests for several nutrition factors, among which are vitamin A, riboflavin, and ascorbic acid. When he applied tests for these three factors to 2000 boys and girls in one of the New York City high schools, located in a section of the city populated chiefly by low-income families, he found over 86 per cent of them had some stage of vitamin A deficiency, about 75 per cent had low riboflavin, and around 50 per cent had too little ascorbic acid. Doubtless many of these boys and girls would not have been called malnourished by a routine physical examination, yet these deficiencies, if allowed to continue, will be a dangerous threat to the health and ability of the individual in later life. They will place him at a disadvantage in competition with his better nourished co-workers, and may result in serious illness. Such defects are too severe a handicap for any child starting out in the economic field, and tests such as those mentioned will mean another step forward in promoting the health of the individual as well as public welfare.

The results of the study just mentioned as well as other similar studies, together with the mass of accumulating evidence from nutrition laboratories, medical clinics, and studies of food habits, demonstrate the need of attention to nutrition in the early years of life as a means of preventing many diseases in later years. The nurse has an unusual opportunity to do constructive work in this

field through studying food habits in the families with which she comes in contact, guiding them into desirable practices, and helping children to learn to like all essential foods during the habit-forming period.

It Is Costly to Neglect Nutrition

COST TO INDUSTRY. Surveys, studies, and observations all show that absences from work due to illness amount to millions of days per year. While economists would find it difficult to estimate the financial loss to industry which is caused by these illnesses, it seems safe to say that it would amount to hundreds of millions of dollars.

How much of this sickness and how much of the resulting expense can be laid to poor nutrition, how much to delayed and inadequate medical attention, or how much to poor hygiene practices or other causes, it would be impossible to determine with present methods of analysis. It is known that diseases of the respiratory tract and the digestive and nervous systems are prominent among those which cause these absences. The development of many of these diseases is also known to be closely related to faulty nutrition. Adding these two known facts together, it seems safe to assume that hidden hungers play a very large part in absences from work. Since lowered working ability during the period preceding the illness and the absence from work are an expense to industry, the state of nutrition of the individual would seem to be an important factor in the cost of production.

COST TO THE INDIVIDUAL. The real burden of sickness, however, falls most heavily on the individual himself, with the greatest hardships from illness in families that can least afford them, those already struggling to make both ends meet financially. Families just above the relief level, according to a National Health Survey, had almost twice as many chronic illnesses as

families with incomes over \$3000 per year and their illnesses were more severe and of longer duration.

Loss of pay because of the absence from work, together with expenses connected with the illness, often wreck a family budget and threaten the standard of living. If, as sometimes happens, a family is forced to ask for public assistance because of expenses and debts, the head of the family frequently loses his courage and his self-confidence. When the effects of illness reach this point, the illness becomes a national concern. Not only are the health and morale of the nation maintained through the health and morale of the individual, but the loss to industry plus the financial assistance and free medical care which may be required also affect national income and national expenditures.

In view of the far-reaching effects of neglected nutrition, the price of preventing these illnesses would be small in comparison. More and more frequently the opinion is expressed that nutritional diseases constitute our greatest medical problem from the standpoint of both disability and economic loss.

Income Versus Education

INCOME. Recalling the large percentage of boys and girls in the New York City high school who had so many nutritional deficiencies, the question arises whether a direct relationship exists between early hidden hungers and the number of illnesses in the low-income working group in later years. If the answer is in the affirmative, and it seems probable that it will be, it raises another question—how many of the deficiencies in the low-income group are due to too little money and how many are the result of unwise spending of the income? Families often say: "Give us the money and we will be well-fed." Is a liberal income the whole solution?

Everyone will agree that a family must have enough money to cover rent, food, clothing, and other expenses, or food will be sacrificed. In families with incomes that barely cover all neces-

sary expenses it is difficult to bring about a fair degree of good nutrition and optimum nutrition would be practically impossible. Yet various studies indicate that about one family in every three in the United States comes within this group. Income, then, is a very real consideration when discussing nutrition with many families.

EDUCATION. Education is equally necessary. While it may be taken for granted that the amount of food purchased will increase as income increases and hunger pangs will, no doubt, be less annoying because of this larger amount of food, even an adequate income is no guarantee that hidden hungers and malnutrition will be prevented.

Dr. Hazel Stiebeling, Chief of the Bureau of Human Nutrition and Home Economics in the United States Department of Agriculture, conducted a survey in which her workers asked many families how they spent their food money. Their diets were rated good, fair, or poor according to the nutritive values provided. Figure 1 shows that not all of the good diets were in the higher income families and neither were all of the poor diets in those with less money to spend.

Dr. H. D. Kruse of the Milbank Memorial Fund applied the riboflavin and ascorbic acid tests used on the 2000 boys and girls in a lower East Side New York City high school to 350 boys and girls in a private school who presumably came from homes with comfortable incomes. Among the boys and girls in the better income group, he found that 9 per cent of them had one deficiency each. While this incidence is not high as compared with the 76 per cent who had riboflavin deficiencies in the lower income group and the 50 per cent with low ascorbic acid levels, yet it shows that higher income does not completely eliminate deficiencies.

Dr. Pauline Berry Mack, of the Ellen H. Richards Institute at Pennsylvania State College, who has cooperated with the Pennsylvania Department of Health in a teaching project to improve the nutrition of large masses of individuals, says: "Family income and education were shown to be the two chief determinants of food choices with education having twice as much influence as

HIGHER INCOMES HELP TO BRING BETTER DIETS



EACH SYMBOL REPRESENTS 5 PERCENT OF THE FAMILIES IN EACH GROUP

Fig. 1.—Higher incomes help to bring better diets but they do not guarantee them. (Courtesy, Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture.)

cash income, indicating the value of education as a means of improving nutritional well being."* The way in which income is spent, then, would seem to be as important as the money itself.

Difficulties Often Encountered

COMPLEXITIES OF THE PROBLEM. If good nutrition could be acquired with a few shots from a needle as in diphtheria prevention and then forgotten, the nutrition problem in public health would be comparatively simple. Instead, it is one of the most complex phases of public health, for acquiring good nutrition is a slow process which often calls for many changes in family and individual thinking and practices. It must be fostered day by day and, even after it is acquired, constant care is needed to maintain it.

EMOTIONAL ATTITUDES. The development of good nutrition is often complicated by emotional attitudes toward life-long food customs, especially among certain racial and national groups in which food is one of the most enjoyable features of the day. Frequently, conflicting likes and dislikes within the family group make it difficult for a family to come to a decision about adjustments necessary to meet good nutrition requirements. For this reason, it is much easier for an individual who lives alone, and has only his own wishes to consider, to change his habits than it is for a person who lives in a family group in which food must be planned, purchased, and prepared to meet the demands of all of its members. The nutrition of the individual is often so dependent on the attitude of the whole group that his problem becomes a family problem instead of an individual one.

NEW FOOD HABITS. Acquiring new food habits is usually a lengthy process. In any event, a quick-change procedure is not to be anticipated in the majority of families, especially those with

* Mack, P. B.: Human Nutrition Research and Improvement in Mass Nutritional Status. Pennsylvania State College Bulletin, 36: No. 16, 38, 1942.

income or emotional obstacles. It frequently takes from six to nine months to make necessary adjustments in food practices, but experience in helping low-income families to readjust food habits and various organized studies have shown that about 75 per cent of the families, even in the low-income group, will form good food habits if they are aided with suggestions about the wise spending of their money.

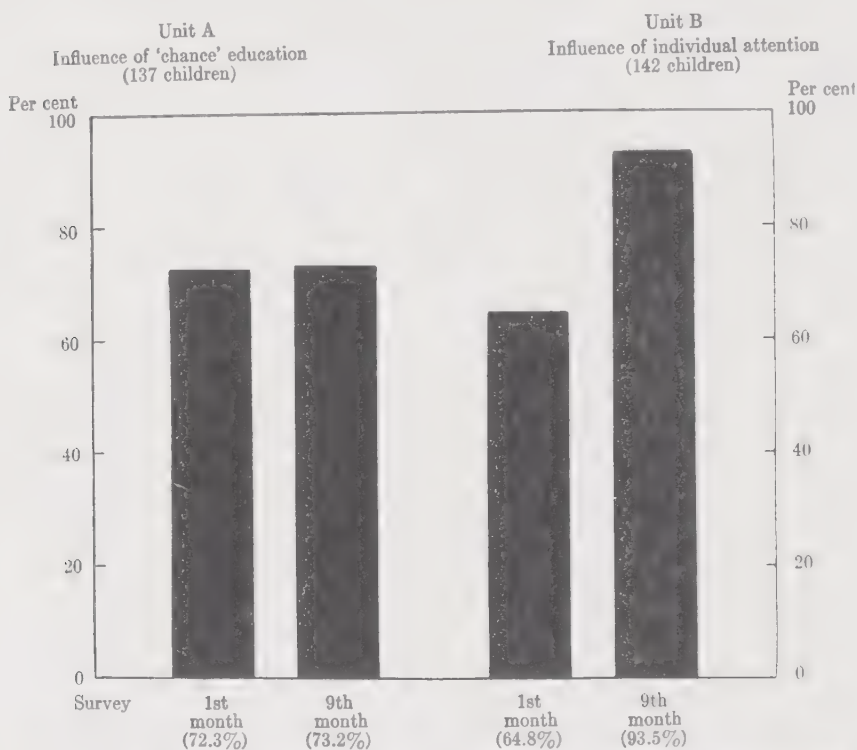


Fig. 2.—Influence of education on an increase in the use of milk during a nine-month period.

The difference between chance education, such as is received through newspapers, advertisements, over the radio, and from friends and neighbors, on the one hand, and the individual approach by way of the family budget on the other, is shown in Figures 2 and 3. These figures are based on a study made jointly by the Milbank Memorial Fund, the Community Service Society of New York, and the New York City Department of

Health for the purpose of determining the influence of education on the food habits of families in a given area.*

Figure 2 represents the number of families having adequate milk at the beginning and at the end of a nine-month study period. None of these families could be said to have had a liberal income and many were receiving financial assistance. Figure 3

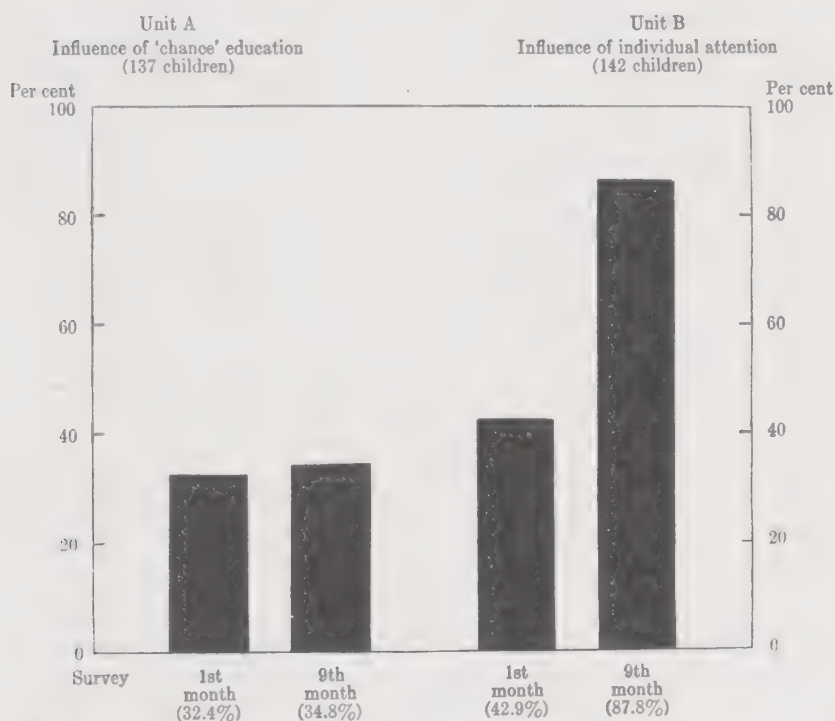


Fig. 3.—Influence of education on an increase in the use of vegetables during a nine-month period.

gives the same information about the use of vegetables in the same families during the same period. Unit A designates a control group, influenced only by "chance" education. Unit B designates the group receiving the personal attention of a nutritionist

* Bovee, D. L., and Downes, J.: The Influence of Education in Families of the Mulberry Area of New York City. *Milbank Memorial Fund Quarterly*, 19: No. 2, 1941

who guided these families in food selection and the spending of their food money.

The figures indicate that desirable changes take place when food habits are left to chance, but much more slowly than when personal attention is given to family problems. Under the latter condition, improvements may be quite striking, even in low-income families. Families also respond more quickly when the person who is guiding them in their food choices understands the economic aspects of marketing as well as food values and is thoroughly convinced of the worth-whileness of her recommendations. She is likely to be most successful in persuading a family to want good food habits when she herself follows the advice she gives to others. A good example is perhaps one of the most telling features in successful nutrition teaching.

Nutrition Is a Growing Subject

KEEPING INFORMED. It is interesting and often thrilling to read the latest news in the field of nutrition, and some of the reports that come from nutrition laboratories in colleges and universities, from medical clinics, and medical colleges throughout the country read more like fiction than fact. The possibility of postponing the period of old age and the quick relief from some of the mental disturbances through the use of niacin are illustrations of the type of discovery we may expect from further research.

Every person using nutrition information to improve health needs to keep informed regarding "new knowledge" and its application in human nutrition. Keeping up-to-date may be done through reading authoritative journals containing articles and abstracts on nutrition, attending lectures by well informed authorities on the subject presented, becoming a member of a study group, and through other reliable sources. Only in this way can anyone be familiar enough with new findings to discuss them

intelligently and use them successfully in applying nutrition in public health.

FADS. Rumors and fads should be carefully investigated, for not all of the reports about new findings which appear in print, come into the home over the radio, or greet one in advertisements are reliable. Some of them may come from pseudo-scientists who may try to capitalize on half-truths or padded results.

Caution is especially necessary in accepting claims and statements about the value of various vitamin preparations. Discrimination is needed in separating the false from the true implications in advertisements. The many fads and faddist diets also need careful analysis for some of them may have a grain of truth which conceals dangerous features; some may be very expensive though harmless and a much less costly diet might meet the need equally well; and some may be both costly and harmful. Fads and fallacies are so ably covered by Dr. L. Jean Bogert in "Nutrition and Physical Fitness"* they will not be discussed here.

The Nutrition Problem

SCOPE OF THE PROBLEM. A comprehensive nutrition program should reach all segments of the community. It needs to be woven into all programs designed to influence the health of pregnant women and nursing mothers, infants, preschool children, school children, adolescents, working boys and girls, men and women of whatever age and occupation, the ill, and the convalescent. Because it is a basic element in so many phases of health work and must reach such large numbers of individuals, it requires the cooperation of all groups in the community whose work is of a nature that lends itself to nutrition teaching.

THE APPROACH. The problem may be approached through individual and group conferences, classes, medical and dental

* Bogert, L. J.: Nutrition and Physical Fitness. 4th ed. Philadelphia, W. B. Saunders Co., 1943, Chapter XXIII.

clinics, schools, clubs, parent-teacher organizations, and other organized groups; through general educational channels, such as newspapers, pamphlets, leaflets, and other printed material, posters, the radio, and local movies; and by any other means which will be effective in reaching the masses.

CONSISTENCY. A very important point which can hardly be over-emphasized is consistency in the advice and information to be given out on any phase of nutrition. If, for instance, one worker advises a mother to give in-between-meal lunches to the children and another worker says there should be no eating between meals, confusion may result which will shake the confidence of the mothers in the whole program and may be more harmful than helpful. Such a debatable question is an example of the need for close cooperation. Conferences between workers should be frequent to keep the confidence of the community unshaken.

NEED FOR VARIED ABILITIES. A nutrition program requires many varied skills and interests, such as the ability and enthusiasm necessary for arousing community action and developing a nutrition consciousness. Special techniques may be necessary for successful fund raising. Someone may be needed with the ability to create a cooperative spirit so that all those who are interested will work together for the common cause.

Frequently organizing ability is required to "sell" the idea of school lunches, preventive dental clinics, and home gardens. It takes a special kind of ability to arrange successful mass meetings which help to give impetus to the program. Every nutrition program needs the skill of someone who can prepare educational material with a popular appeal and present it effectively and convincingly through general channels of education, such as the radio, the movies, and the newspapers.

Fundamental in any nutrition program are the skills and the knowledge of the physician, nurse, and nutritionist who must carry out the professional aspects of the program. Any agency responsible for financial assistance to families obviously has a very vital part to play in any nutrition program.

PROTECTING THE FOOD SUPPLY. One purpose of the Food and

Drug Administration in the Federal Security Agency is to protect the health of the country by setting standards for the nutritive value of certain foods which enter interstate commerce, by inspections which help to maintain these standards, and by regulations which protect the consumer from false and injurious substances. While the Federal Trade Commission has the power to enforce these regulations for foods that pass from one state to another, it has no authority over foods grown or processed and sold within a state.

The protection of local food is, therefore, a state and local problem and some pressure from local groups may be necessary to insure the safety of the food supply. As an illustration, the enrichment of white bread has been urged by Federal authorities but it is up to the individual state, through state legislation, to make it compulsory within its borders. Because of the important contribution which enriched bread makes to the nutritive value of the diet, and hence to the health of the individual, it should be on sale in every community. It is especially important for low-income families who eat a great deal of bread. To make it available in states that have not yet passed the required legislation, someone with a legal turn of mind may be useful in representing the consumer's interest before the legislative body.

NATIONAL AND INTERNATIONAL CONTACTS. *National Programs.* The nutrition program should be integrated with industrial hygiene programs and correlated with similar nutrition programs in other communities. Nutrition programs are in progress in many parts of the country, many with unique methods of approach. As news about one program often stimulates another group to introduce new features into its program, it is of value to keep in touch with the work being done in other communities.

International Programs. It also should be inspiring to follow the work of the Food and Agriculture Organization of the United Nations, which is the first body within this organization to be permanently set up. Its chief objectives as outlined are:

To raise the nutrition level and standard of living of peoples whom it reaches through its member groups by means of operational and edu

educational programs; coordination of research; and formulation of food policies.

To study the relationship between adequate food intake and such social and economic policies and measures as wages, social security, financial assistance to families, special feeding programs, and subsidies of agricultural products.

Summary

The health of a nation is maintained through the health of its individual citizens. Optimum nutrition is fundamental in positive health. Optimum nutrition should be the ultimate goal but a person may be well-nourished, even though he is unable to reach the highest peak.

Children of today are the workers of tomorrow. Optimum nutrition for them is a rich asset which will pay high dividends in health and ability, both mentally and physically.

Good nutrition for the child means more vigorous years for the adult which, in turn, mean a better quality of work, fewer major illnesses, fewer absences from work, less loss of pay, and a higher standard of living.

Better quality of work and fewer absences from work will tend to increase production, national income, national welfare, and prosperity.

Education in good food habits for the whole community should be a part of any joint nutrition program. This requires mass education, group instruction, and family and individual attention.

In many families, advice with regard to the spending of the family income is the only approach which will meet with success in making conditions favorable for good nutrition.

Teaching should be done with dynamic force and whole hearted conviction concerning the importance of good nutrition.

Adults, like children, are strongly influenced by the practices of those to whom they look for guidance. The "teacher" of food

habits is most convincing when she uses available knowledge to increase and maintain her own health and vitality.

A nutrition program which covers a whole community is too great an undertaking to be carried out successfully by one individual or by one group of individuals. It calls for a hearty spirit of cooperation so that the whole community will work together for the common goal.

A comprehensive program requires vision, organization, and leadership.

CHAPTER II

CHOOSING FOODS FOR GOOD NUTRITION

Chance and instinct are unreliable guides in food selection.

A dependable guide is essential for the prevention of hidden hungers.

No one combination of foods will please everyone and there is no one combination of foods which everyone must adopt. The important point is for each person to select foods that will provide all the nourishment he needs for good nutrition and good health.

A Simple Food Guide

FOODS GROUPED FOR CONVENIENCE. The logical starting point in meal planning is to think of foods which may be exchanged, one for the other, in groups, such as milk and cheese in one group and fruits and vegetables in another. The next step is to choose one or more from each group and compare with those already included in the daily meal plan. Doubtless the majority of families will find they are using a food from *almost* every group and many will see no reason for making any change. Yet any group omitted may be a very serious handicap to growth and health, as shown in Figure 4. Both dogs in this illustration had all the food they could eat, but the food of the larger dog included milk while there was no milk in the food given to the smaller dog.

Food groups, then, may be used to discover the omission of any essential food and thus help to avoid the pitfalls of a hit-or-miss system of food selection. The most important value of such a guide, however, is the help it gives in planning meals containing all the nourishment a family needs for good nutrition.

FLEXIBILITY. With the exception of milk, or cheese if one prefers it in place of milk, no one food is indispensable for health protection. Neither must any one combination of foods be used daily. Any combination that will supply enough protein, minerals, and vitamins to keep children growing vigorously and main-



Fig. 4.—The neglect of one food may retard growth. These puppies are brothers, the same age, of same litter, and the same size at weaning time. After weaning, both were fed all the bread and cooked cereal they would eat with some meat added. In addition, the big dog received milk every day while the little dog had none. (Courtesy, the National Dairy Council Chicago, Illinois.)

tain family health and vitality and supply ample energy for the day's activities is satisfactory. There is no reason why a Puerto Rican family, for instance, should give up its rice and beans for meat and potatoes, provided it can be persuaded to use brown rice instead of white and to use green leaf vegetables freely.

Whatever combination of foods is preferred, it should include something from each of these groups:

Food Groups

- I Milk and cheese
- II Fruits and vegetables
 - Citrus fruit and tomatoes
 - Green and yellow vegetables
 - Potatoes
 - Other fruits and vegetables
- III Eggs
- IV Meat, fish, poultry, and legumes
- V Bread, cereals, and other foods made from grains
- VI Fats and sweets

AMOUNTS NEEDED. Each of these groups contains a wide variety of foods and everyone should find it possible to choose those he prefers or those that suit his income. After foods are selected, however, it still is necessary to think of the amount of each which is needed, for such indulgences as small amounts of milk and vegetables and large amounts of white rice, fats, and sweets could leave many defects in the tissues. The Food Guide that follows suggests the approximate amount of each food that will be necessary to prevent hidden hungers.

A Food Guide for Maximum Health Protection

Group I—Milk and Cheese

Milk

	Amounts	
	Daily	Weekly
During the first year	1 qt.	7 qts.
From the first year through adolescence	3 to 4 cups	5 to 7 qts.
For each adult	2 to 3 cups	3½ to 6 qts.
For every expectant mother	1 qt.	7 qts.
For every nursing mother	5 to 6 cups	10 to 11 qts.

These quantities include milk for cooking and drinking. Whole fresh, dried, and evaporated milk may be used, one for the other. When skimmed milk is used, meals need additional vitamin A and other sources of fat.

Cheese

Whole milk cheese may be used for part or all of the milk quota for everyone except infants and small children. Four or 5 ounces of cheese is an average amount to replace 1 quart of milk.



Group II—Fruits and Vegetables

Citrus fruit and tomatoes

For children under four years of age and for expectant and nursing mothers:

A generous daily serving of citrus fruit (4 oz.) or tomato (8 oz.).

For every other member of the family:

A generous serving at least four or five times a week with a daily serving for added health insurance when income permits.



Green and yellow vegetables

A generous serving (about $\frac{1}{2}$ cup or 4 oz.) of a green or yellow vegetable daily for everyone; if income permits, a green leaf vegetable every day with yellow vegetables at least three or four times a week.



Potatoes

At least one serving daily for everyone, preferably two or three times daily in low income families; if rice or macaroni is used in place of potatoes, they should be supplemented with large servings of green leaf vegetables.



Other fruits and vegetables

An additional fruit or vegetable for everyone daily.



Group III—Eggs

Four or five eggs weekly for everyone as a minimum, with an egg daily when income permits.



Group IV—Meat, Fish, Poultry, and Legumes

Meat not more than three or four times a week in low-income families; liver, kidney, or heart at least once weekly, regardless of income. Legumes, cheese, or fish on days when no meat is served.



Group V—Bread, Cereals, and Other Grain Products

Bread or cereal, one or both, at each meal; whole grain and enriched bread and cereals preferred; other cereal products as desired.



Group VI—Fats and Sweets

A moderate amount of fat and a very moderate amount of sweets, if any.

FISH LIVER OIL. A teaspoonful or more of fish liver oil or its vitamins A and D equivalents in some form is especially needed every day to produce good growth during the growing period, both winter and summer. It is also desirable for the rest of the

family as a means of producing a high degree of resistance. Those who live where dust, smoke, haze, and cloudy weather interfere with the effectiveness of the sun's rays and those who work indoors during the middle of the day when the sun's rays are most effective especially need fish liver oil for its vitamin D.



ADAPTATIONS. The combination of foods suggested in the Food Guide will provide all the food factors necessary for good nutrition, but changes often have to be made to meet the needs of a family as its income changes, as foods in local markets vary with location and the seasons, and as other changes in the family situation may occur. There should be no decrease in food value in making these adaptations, however, and anyone who suggests changes should keep in mind the chief foods that will supply each factor, the part each plays in good nutrition and good health, and foods that may be used, one for the other. A review of these points is included for reference.

Energy ("Calories")

MOST ABUNDANT SOURCES

Bread, cereals, and all foods made from corn, oats, rye, wheat, and other grains.

Cream, butter, margarine, peanut butter, fat meat, including bacon, all oils, and any other fat; dishes in which fat or oil has been used generously, such as pastries, cakes, meat gravies, and salad dressings.

Sugar, honey, molasses, and sirups; dishes in which sweets have been used generously, such as cakes, cookies, puddings, candies, jams, jellies, and preserves.

Many other foods, such as bananas and potatoes, may become abundant sources of "calories" if used liberally.

TABLE 1
CALORIES IN AVERAGE SERVINGS OF COMMON FOODS*

Protein-rich Foods			Health-Protective Fruits and Vegetables			High-Calorie Foods		
Food	Amount	Calories	Food	Amount	Calories	Food	Amount	Calories
Milk			Fruits			Bread	1½ oz.; 1½ sl.	100
Fresh	1 c.	170	Citrus (avg.)			Cereal, cooked	1 oz.; dry; ¾ c. cooked	100
Skimmed	1 c.	90	Grapefruit, small	½ c.	50	Cereal, ready-to-eat		
Buttermilk	1 c.	90	Grapefruit juice	1		Cornflakes	1 oz.; 1½ c.	100
Cheese, Am.	1 oz.	110	Orange, small	½ c.		Puffed wheat	1 oz.; 2½ c.	100
Cheese cottage	½ oz.	100	Orange juice	1		Shredded wheat biscuit	1	100
Eggs	1	70	Tangerine, large	½ to ¾ c.	50			
Legumes, avg.			Berries			Crackers, soda		100
Meat, avg.			Other fruit, fresh			Flour	1 oz.; ¼ c.	100
Lean	1 oz.; 2 tbsp. uncooked; ½ c. cooked	100	Apple, large	1	50	Macaroni	1 oz. uncooked; ¾ c. cooked	100
Med. fat	4 oz.	200	Banana, large	1½ c.		Rice	1 oz. uncooked; ¾ c. cooked	100
Liver	4 oz.	300	Cantaloupe, 5	1		Fats		
Fish, fresh, avg.	3 oz.	100	Grape juice	1		Butter, margarine, oil	1 tbsp. 2/3 tbsp. 1/4 c.	100
Non-oily	5 oz.	200	Nectarine	1		Cream, heavy		100
Oily	5 oz.	200	Peach	1		light		100
Fish, canned			Plums	2		Sweets		
Salmon	2 oz.; ½ c.	100	Pineapple	1 slice		Candy	2 to 3 pieces	100
Tuna	2½ oz.; ½ c.	100	Dried			Fudge	1" square	100
Nuts			Peaches, halves	4		Honey	1 tbsp.	100
Peanuts	10 kernels	50	Prunes	4		Molasses	1½ tbsp.	100
Peanut butter	1 tbsp.	70	Dates	1		Sirup, maple	1½ tbsp.	100
Others, avg.	5 to 8 nut meats	50	Figs	2		Sugar		
			Raisins	2 tbsp.		Brown	3 tbsp.	100
			Vegetables			White	2 tbsp.	100
			Potatoes					
			White	1 med.	100			
			Sweet	1 med.	200			
			Other vegetables					
			Average	4 oz.	25			

* Figures in Tables 1, 2, 3, 4, 5, 6, 7, and 8 in this chapter are based on those given in Table 4, Appendix, in MacLeod, G. and Taylor, C. M. *Row's Foundations of Nutrition*, 4th Ed. New York, The Macmillan Company, 1944.
After this table was completed, more recent figures appeared in Publication No. 572, Bureau of Human Nutrition and Home Economics, U.S. Department of Agriculture, in cooperation with the National Research Council. All figures were checked with this more recent publication and such changes made as seemed significant.

RÔLE IN NUTRITION. Men, women, and children work and play because food eaten supplies them with energy. They also have varying degrees of fatty tissue according to the energy value of their food. The energy value of foods, both for activity and for forming fatty tissue, is measured in calories. Just as a pound is a measure which may be used to indicate how many potatoes the housewife wants to buy, so a calorie is a measure which may be used to tell how many units of energy a person needs for his activities during a given period according to the type of work he does.

AMOUNT NEEDED. The number of calories each individual needs daily is given in Table 9 at the end of this chapter. Professor H. C. Sherman suggests that at least half of the calories should come from milk, fruit, and vegetables for health protection. Table 1 gives the energy (expressed in calories) provided by average-sized servings of common foods. Foods in the table are so arranged as to make it easy to count calories from protein-rich foods, from health protective foods, and for those especially valuable for energy.

Protein

MOST ABUNDANT SOURCES

Cheese, eggs, and milk.

Fish and meat.

Legumes and nuts.

Bread, cereals, and potatoes make generous contributions to the protein intake when used in liberal amounts.

RÔLE IN NUTRITION. Protein is vital to all cell life and fundamental for strength, vitality, and good resistance. Too little protein will result in decreased vitality, low resistance, loss of physical strength, and mental and physical fatigue. Children are likely to be stunted in growth if protein is inadequate during the growing period.

TABLE 2
PROTEIN VALUE OF PROTEIN-RICH FOODS*
APPROXIMATE GRAMS PER AVERAGE SERVING

	<i>Approximate Grams of Protein</i>					
	Over 30 gm.	25 to 30 gm.	20 to 24 gm.	15 to 19 gm.	10 to 14 gm.	5 to 9 gm.
Milk						
1 quart	32					
1 pint				16		
1 glass, ½ pint						8
Egg 1						6
Meat, average						
Medium fat						
4 oz.				18		
5 oz.			23			
Lean						
4 oz.			22			
5 oz.		28				
Liver						
3 oz.				17		
4 oz.			22			
Fish, average						
4 oz.				18		
5 oz.			22			
Legumes						
Soybeans						
1 oz. uncooked						
¼ c. cooked					10	
Navy beans						
1 oz. uncooked						
¼ c. cooked						6
2 oz. uncooked						
⅔ c. cooked					12	
Cheese						
1 oz. American				19		
3½ oz. cottage; ⅓ c.					14	
Peanut butter						
0.6 oz.; 1 tbsp.						4
Bread, Cereals, and Potatoes						
Bread						
8 oz.; 6 to 8 slices			20			
4 oz.; 3 to 4 slices					10	
Cereals						
1½ oz., dry; 1¼ c., scant, cooked						5
1 oz., dry; ¾ c. cooked						3
Potatoes						
1 lb.; 3 medium						8
5 oz.; 1 medium						3

* See footnote on page 24.

AMOUNT NEEDED. Children, expectant and nursing mothers, and convalescents who must build new tissues are in special need of generous amounts of protein. If children and convalescents have the recommended amounts of milk and eggs, the remainder of their protein will doubtless be supplied in other foods, but the protein content of the diets of nursing and expectant mothers needs special attention. This is discussed in Chapter VII.

The weight in grams of protein for optimum nutrition is given in Table 9 at the end of this chapter. The protein value of average-sized servings of common foods is given in Table 2.

Mineral Elements

The quantity of a mineral which the meals of each person should contain is no indication of its importance. It takes the combined work of all minerals to make life with all its activities possible. If food provides too small an amount of any one of them over a considerable period of time, something is sure to go wrong with some of the internal processes. It is important to insure the inclusion of each of the essential elements to permit the development of well-shaped bones and teeth during the growing period and to assist in the proper functioning of muscles and other soft tissues at all ages. The known essential elements are calcium, chlorine, copper, iodine, iron, magnesium, manganese, phosphorus, potassium, sodium, and sulfur. Cobalt and zinc are believed necessary and others are being investigated.

In addition to this general contribution to general well-being, each of twelve or more minerals has a special job in keeping the work of the body going smoothly and each must be supplied regularly, small as the necessary amount may be. Most of these mineral elements are in so many foods, however, that it is safe to assume they will be provided in sufficient amounts if iron, calcium, and iodine are adequate. Only these three elements will be discussed in detail.

Calcium

MOST ABUNDANT SOURCES

Milk, and cheese made with rennet, cheese coagulated with acid has lost much of its calcium.

Some green leaves, such as broccoli, collards, and turnip tops; green vegetables such as chard, beet tops, and spinach contain oxalic acid which combines with the calcium and makes it valueless in the system.

RÔLE IN NUTRITION. Calcium, together with phosphorus, furnishes the foundation for bones and teeth. It helps in the proper beating of the heart, circulation of blood, the coagulation of blood, digestion, the contraction and relaxation of muscles, and the control of the nervous system. It makes some of the other

TABLE 3
CALCIUM VALUE OF COMMON FOODS*
APPROXIMATE GRAMS PER AVERAGE SERVING

	<i>Approximate Grams of Calcium</i>		
	1 gm. or more	0.5 gm.	0.2 to 0.3 gm.
Milk, fresh	1 qt.	1 pt.	
Buttermilk			1 glass
Cheese, hard			1 oz.
Vegetables			$\frac{1}{4}$ lb. turnip greens $\frac{1}{4}$ lb. soybean curd

* See footnote on page 24.

minerals more effective by stimulating or checking them when they behave abnormally. Iron, for instance, is used to so much better advantage in the presence of a generous amount of calcium that a condition often attributed to low iron may be caused by too little calcium. At the same time, calcium does its best work when an ample supply of ascorbic acid is present.

The effect of inadequate calcium during early years shows in bowed legs, a small chest cavity, other deformed bones, and carious teeth. Too little calcium over a long period may result in bones so brittle that they break easily. This is especially noticeable in the aged.

Liberal calcium from the first week of life through adulthood will show in increased vigor, increased length of life, and a lower death rate.

AMOUNT NEEDED. The amount of calcium needed for optimum nutrition is given in Table 9 at the end of the chapter. The amount of calcium in average-sized portions of common foods is given in Table 3.

If a food is not listed in any of the groups given, it may be assumed that it contains less than 0.2 gm. of calcium or, as in the case of green vegetables, it may not be a reliable source.

Iron

MOST ABUNDANT SOURCES

Eggs.

Meat, especially liver, heart, and kidneys.

Oysters.

Dark green leaves.

Whole grain and enriched bread, cereals, and flour.

Dried fruits, especially prunes and raisins.

Legumes.

RÔLE IN NUTRITION. Iron works only in the presence of copper. Calcium also helps iron to work to better advantage. When these two elements are present, iron stimulates cell activity, carries oxygen to the tissues, and removes carbon dioxide.

As iron is decreased, heart action and respiration become more rapid and that "all-gone-feeling" and fatigue develop easily. Even a slight anemia may cause retarded growth in children and poor appetites and increased susceptibility to infections at all ages.

TABLE 4
IRON VALUE OF COMMON FOODS*
APPROXIMATE MILLIGRAMS IN AVERAGE SERVINGS

<i>Approximate Milligrams of Iron</i>					
	5 mg. and over	3 mg. (+ or -)	2 mg. (+ or -)	1.5 mg. (+ or -)	1 mg. [†] (+ or -)
Fruit					
Fresh					
Dried					
Vegetables					
Green leaf vegetables (4 oz. raw = $\frac{1}{2}$ c. cooked)				1 c. strawberries 6 halves of apricots	4 or 5 prunes 2 large figs 2 tbsp. raisins
Legumes (1 oz., 2 tbsp. = $\frac{1}{3}$ c. cooked)					
Potatoes					
Eggs					
Meat					
Fish					
Bread (1 slice = 1 oz. — avg.)					
Whole wheat					
Enriched					
Cereals, home-cooked (1 oz. [†] dry = $\frac{3}{4}$ c. cooked)					
Cereals, ready-to-eat					
Rice, brown (1 oz. uncooked = $\frac{3}{4}$ c. cooked)					
Sweets					
	3 oz. liver (10 mg.) 4 oz. kidneys (7 mg.) $\frac{1}{2}$ c. oysters (8 mg.) 6 clams (6 mg.) 6 slices	4 oz. raw, beet tops, chard, spinach 1 lb.	4 oz., raw, dandelions, mustard greens, turnip tops 1 oz.	1 oz., raw, escarole, kale	4 oz., raw, Brussels sprouts, string beans 2 oz. ($\frac{1}{2}$ c.) peas, shelled 1
	3 oz. lean beef 4 oz. lean beef		4 oz. pork or smoked ham (med. fat)		
	6 slices		2 slices	$\frac{3}{4}$ c. cooked oatmeal	2 slices
			4 oz.		1 oz. (2 $\frac{1}{2}$ c.) puffed wheat shredded wheat biscuit
			1 tbsp. molasses		

* See footnote on page 24.

† Foods supplying less than 1 mg. iron in an average serving may be counted as additional health insurance.

AMOUNT NEEDED. It is a wise precaution to include at least three foods in the daily meals, each of which supplies over 2 mg. of iron. The amount of iron in average-sized servings of common foods is given in Table 4. The amount of iron necessary for optimum nutrition is given in Table 9 at the end of the chapter.

Iodine

MOST ABUNDANT SOURCES

Milk, vegetables, fruit, and drinking water in sections of the country where soil is rich in iodine.

Iodized salt.

RÔLE IN NUTRITION. Iodine is necessary for the proper functioning of the thyroid gland which helps to control the rate of metabolism. It has a very direct relationship to the rate of growth in children and to the health as well as weight of adults. With too little iodine, weight increases abnormally with a slowing down of both mental and physical processes.

AMOUNT NEEDED. Only a small amount of iodine is needed but because this small amount is so important, the Food and Nutrition Board of the National Research Council recommends the use of iodized salt as a precautionary measure for everyone. The iodine supply needs special attention during adolescence and pregnancy. For recommended amount which the food should supply daily, see Table 9 at the end of this chapter.

Vitamins

THE VITAMIN FAMILY. At least six members of the vitamin family are closely related to health, efficiency, and personal appearance. These six are: Vitamin A, thiamine (vitamin B₁), riboflavin (vitamin G or B₂), niacin, ascorbic acid (vitamin C), and vitamin D. Each vitamin is essential for good growth, a healthy

individual, and a long, useful life. Each vitamin also has special duties in keeping the body mechanism working normally.

Vitamin A

MOST ABUNDANT SOURCES

Butter, cream, whole milk, whole milk cheese, and eggs.

Liver and kidneys; fish liver oils.

Dark green leaf vegetables, such as chard and kale; the darker the green color, the richer the leaf in vitamin A.

Yellow vegetables, such as carrots and sweetpotatoes.

Yellow fruit, such as deeply colored cantaloupe and yellow peaches.
Prunes and tomatoes.

ROLE IN NUTRITION. Vitamin A protects mucous membranes by increasing their resistance to infections. This protection ex-



Fig. 5.—The growth and appearance of children, as well as of rats, may be influenced by the amount of vitamin A they have in their food. The healthy, sleek-looking rat at the right had an abundance of vitamin A. The smaller, sad-appearing rat at the left had too little vitamin A and suffered because of it. (Courtesy, The American Can Company, New York City.)

tends from the eyes, ears, and nose down through the whole respiratory tract and covers the digestive and genito-urinary tracts

and the ducts leading to all glands. Vitamin A is necessary for well-formed bones and sound teeth. It helps the eyes to adjust easily in going from dark to light and from light to dark.

If more vitamin A is taken in any one day than can be used immediately, the unused portion will be stored for future protection. If the amount of stored vitamin A becomes too low, however, secretions flow less freely, pores become clogged, and micro-

TABLE 5
VITAMIN A VALUES OF COMMON FOODS*
APPROXIMATE UNITS OF VITAMIN A IN AVERAGE SERVINGS

<i>Approximate International Units of Vitamin A</i>				
	6000 to 15 000 and over I.U.	4000 to 5000 I.U.	1000 to 2000 I.U.	500 to 900 I.U.
Milk			1 qt.	1 pt.
Cheese Hard Cream			2 tbsp. (1 oz.)	1 oz.
Fruit		$\frac{1}{2}$ 5" cantaloupe (deeply colored)	2 apricots 1 peach, yellow	$\frac{1}{2}$ 5" cantaloupe (average)
Vegetables 4 oz or $\frac{1}{2}$ c. is an average serving	carrots dark green leaves, average	Hubbard squash	string beans peas, $\frac{3}{4}$ c., shelled	
Eggs				1
Meat	3 oz. liver (16,000)		5 oz. kidneys	
Fats			1 tbsp. butter (avg., 900) 3 tbsp. butter (2700)	1 tbsp. margarine (280)† 3 tbs. margarine (840)

* See footnote on page 24.

† There is a trend to increase the vitamin A content of margarine to 15,000 units per pound which will make it equal in food value to average butter.

organisms can enter the system easily. With too little vitamin A, hair is often dry and shaggy and skin becomes rough and easily irritated. Children may be retarded in growth and have "runny" ears and noses, swollen and inflamed eyelids, and conjunctivitis usually develops if vitamin A deficiency is very severe. Figure 5 shows what happens to the eyes and general appearance of rats that have too little vitamin A.

AMOUNT NEEDED. Since carotene, or pro-vitamin A, which occurs in foods of vegetable origin is less well utilized than vitamin A found in foods of animal origin, at least one third of the vitamin A needed each day should come from milk and its products, liver, eggs, and cod liver oil. The amount needed for good nutritional condition is found in Table 9 at the end of the chapter while the amount of vitamin A in average-sized servings of common foods is given in Table 5.

It is safe to assume that any food not listed in any of the groups given will provide less than 500 I.U. of vitamin A. The required amount of vitamin A should be obtained through foods comparatively rich in this factor and additional amounts counted as extra health insurance.

Thiamine (*Vitamin B₁*)

MOST ABUNDANT SOURCES

Whole grain cereals and cereals with added vitamins.

Whole grain and enriched bread and flour.

Dried beans, peas, and lentils.

Liver, kidney, and muscle meat, especially pork.

Milk.

Oysters and salmon.

Dark green leaf vegetables.

RÔLE IN NUTRITION. Thiamine stimulates the appetite, aids digestion, and helps to keep the whole digestive tract in good working condition; it helps in the control of involuntary activities; it protects the heart muscles; and it is essential for the utilization of carbohydrates. It is needed in large amounts during pregnancy to give tone to the whole digestive tract. It stimulates the flow of breast milk during the nursing period.

A deficiency of thiamine may result in an enlarged heart, slow digestion, constipation, a constant feeling of fatigue, a decrease

in physical ability, irritability, headaches, loss of muscle tone, and stiff joints. Children who are not interested in food may have too little thiamine.

AMOUNT NEEDED. Since the body carries a very limited reserve supply of thiamine, it needs to be supplied liberally each day. The amount of thiamine required daily for good health protection is

TABLE 6
THIAMINE VALUE OF COMMON FOODS*
APPROXIMATE MILLIGRAMS PER AVERAGE SERVING

	<i>Approximate Milligrams of Thiamine</i>		
	0.5 to 1.0 mg.	0.3 to 0.4 mg.	0.1 to 0.2 mg.
Milk, all kinds		1 qt.	1 pt.
Vegetables Green leaf vegetables (4 oz. raw = $\frac{1}{2}$ c. cooked)			4 oz. green leaf, 4 oz. asparagus, lima beans, and parsnips 2 oz. peas, shelled
Legumes, 1 oz. (2 tbsp. = $\frac{1}{3}$ c. cooked)	2 oz. uncooked soybeans or split peas	2 oz. uncooked navy beans 1 potato, white or sweet	
Meat	4 oz. lean ham 4 oz. lean pork 4 oz. kidneys	3 oz. liver	4 to 5 oz. lean beef, lamb, or veal 2 oz. bologna 2 oz. ($\frac{1}{2}$ c.) canned salmon
Fish		$\frac{1}{2}$ c. oysters	
Bread (1 slice = 1 oz., average) Whole wheat or enriched Cereals, home-cooked (1 oz. dry = $\frac{3}{4}$ c. cooked)	6 slices 1 oz. uncooked dark farina with added wheat germ	4 slices	2 slices 1 oz. uncooked oatmeal, dark farina, or en- riched light fa- rina

* See footnote on page 24.

given in Table 9 at the end of this chapter. The amount of thiamine in average-sized portions of common foods is given in Table 6.

It is safe to assume that any food not listed in any of the groups given will provide less than 0.1 mg. thiamine and any amount received from these foods may be counted as additional health insurance.

Ascorbic Acid (Vitamin C)

MOST ABUNDANT SOURCES

Citrus fruit and their juices which include grapefruit, lemons, oranges, and tangerines.

Melons, papayas, and strawberries.

Tomatoes and tomato juice, fresh and canned.

Raw vegetables, especially cabbage and green peppers.

Potatoes when baked or boiled in their jackets.

ROLE IN NUTRITION. Vitamin C strengthens small blood vessels and all connective tissues and thus helps to prevent hemorrhages. By strengthening connective tissues, it also helps to

TABLE 7
ASCORBIC ACID VALUE OF COMMON FOODS*
APPROXIMATE MILLIGRAMS PER AVERAGE SERVING

<i>Approximate Milligrams of Ascorbic Acid</i>				
	60 to 80 mg.	40 to 50 mg.	20 to 30 mg.	10 to 15 mg.
Milk				1 qt.
Fruit	1 orange, med. ½ grapefruit, med. ⅔ c. strawberries	½ 5" cantaloupe 4 oz. (½ c.) grapefruit juice ½ guava 1 papaya	2 oz. (¼ c.) lemon juice ½ mango, med. 1 tangerine	½ avocado 1 banana, large 1 peach, med. 4 oz. (½ c.) pineapple juice ¾ c. raspberries
Vegetables		1 green pepper ⅓ c. (1 oz.) bean sprouts	2 ½ c. chopped cabbage 4 oz. raw (½ c. cooked) green vegetable (avg.)† ½ c. tomato or tomato juice 1 tomato, med.	1 potato, sweet 2 potatoes, white (cooked values) 2 oz. yellow turnip, raw

* See footnote on page 24.

† Cooked value for green vegetables.

prevent sore joints, an enlarged heart, sagging muscles, and easy fatigue. It helps to keep teeth sound and gums in good condition. It aids iron in preventing anemia and lessening susceptibility to

infections. It also is necessary for the proper utilization of calcium.

Some of the symptoms that appear when too little ascorbic acid is taken are sore joints, sore and bleeding gums, general weakness, and a tendency to form "black and blue" spots. Children who have too little vitamin C grow slowly and may be irritable and restless.

AMOUNT NEEDED. Since the body carries very little reserve of ascorbic acid, it should be used liberally every day. The amount needed for good protection is given in Table 9 at the end of the chapter. The amount of ascorbic acid in average-sized portions of common foods is given in Table 7.

If a food is not listed in any of these groups, it is safe to assume it would supply less than 10 mg. of ascorbic acid and may be counted as additional health insurance.

Vitamin D

MOST ABUNDANT SOURCES

Fish liver oil, such as cod and halibut.
Foods enriched with vitamin D, such as milk.
Sunshine on the skin.

RÔLE IN NUTRITION. Vitamin D must be provided in some way during the growing period to insure the proper use of calcium and phosphorus in forming well-shaped bones and sound teeth and to help in building up good resistance in the tissues. Vitamin D is very important during pregnancy and lactation to protect the health of the mother as well as the growth of the baby. It must be started early and continued throughout the growing period to prevent permanent injuries.

Some of the results of too little vitamin D are irritable babies, misshapen bones, especially noticeable in bowed legs, a fore-shortened chest cavity which may predispose to lung diseases, and

a narrow pelvis which may cause difficulty for women during childbearing. The importance of vitamin D for adults is not clearly understood, but a small amount is recommended all through life as a preventive measure.

AMOUNT NEEDED. The amount recommended at various ages is given in Table 9 at the end of this chapter. The amount of vitamin D in common foods is too small to be significant in nutrition and the amount in fish liver oils varies with the kind of fish and the brand of oil purchased. The vitamin D content of the particular brand of fish liver oils will be on the label of the container in which it is purchased.

Riboflavin (Vitamin G)

MOST ABUNDANT SOURCES

Milk and cheese.

Liver, kidneys, and muscle meat.

Whole grain bread and cereals.

Most dark green leaf vegetables.

RÔLE IN NUTRITION. Riboflavin increases vigor at all ages, helps to increase the number of vigorous years, and to delay the common infirmities of advancing age. It helps to make steady nerves, aids digestion, gives better vision, and helps to produce a clearer, healthier skin. It is said to preserve the characteristics of youth.

A deficiency shows in its effect on appetite, digestion, vitality, and lowered resistance. The tongue often becomes red and rough, accompanied by discomfort in taking highly seasoned foods. Signs of advancing age appear prematurely. In extreme deficiencies, cracks occur at the corners of the mouth, hair may become thin, vision may grow dim, eyelids become scaly, and eyes may be sensitive to light.

AMOUNT NEEDED. The amount recommended at various ages

is given in Table 9 at the end of this chapter. Amounts of riboflavin in average-sized portions of common foods are given in Table 8.

TABLE 8
RIBOFLAVIN VALUE OF COMMON FOODS*
APPROXIMATE MILLIGRAMS PER AVERAGE SERVING

Approximate Milligrams of Riboflavin			
	1.5 to 2.0 mg.	1.0 to 0.5 mg.	0.2 to 0.3 mg.
Milk, all kinds	1 qt.	1 pt.	3 ½ oz. or ⅓ c.
Cheese, cottage			
Vegetables			4 oz., average
Green leaf (4 oz. raw = ½ c. cooked)			1 lb.
Potatoes			
Meat	3 oz. liver 4 oz. kidneys		4 oz. beef, lamb, ham, pork, veal
Fish		3 oz. mackerel	2 ½ oz. bologna ½ c. oysters
Bread (1 slice = 1 oz.), avg. Whole wheat or enriched			6 slices

* See footnote on page 24.

If a food is not listed in any of the groups given, it may be assumed that it will provide less than 0.2 mg. of riboflavin and any amount obtained from these foods may be considered as added health insurance.

Niacin

MOST ABUNDANT SOURCES

- Milk and eggs.
- Liver, kidneys, and muscle meat.
- Salmon and probably all fish.
- Dark green leaf vegetables, such as broccoli, dandelions, kale, and mustard greens.
- Whole grains, such as oatmeal, brown rice, and whole wheat.
- Dried beans, lentils and peas.

ROLE IN NUTRITION. Niacin stimulates the appetite and aids digestion. It helps to produce good mental health and stability.

It is essential in the prevention of pellagra. With too little niacin, there may be digestive disturbances, sleeplessness, headaches, lowered vitality, and mental depression. Skin disorders with reddish rash are not uncommon.

AMOUNT NEEDED. The recommended daily intake of niacin is given in Table 9 at the end of this chapter. The amount in various foods has not yet been well enough established to be included in a table.

Other Vitamins

Many other vitamins are known to exist, but their relationship to human nutrition is not well established, and too little is known about them to try to discuss them here. Among these less well known vitamins are:

Vitamin E, widely distributed in common foods, is found most abundantly in seed oils and leaf vegetables. It is thought to be connected with reproduction and sterility.

Vitamin K, found in all green leaves, egg yolk, soy bean oil, liver and tomatoes, is necessary for the formation of prothrombin. Hemorrhages occur in its absence, especially during the postpartum period and in newborn babies.

Biotin, *choline*, *para-amino benzoic acid*, *pyridoxine*, and *pantothenic acid* are among others that are being investigated. They are known to be related to growth and health of animals, but their influence on human nutrition has not yet been determined.

Vitamin Preparations

The market is flooded with vitamin preparations, each highly advertised with promises that lure the unsuspecting public to invest millions of dollars each year. Much of this money may be wasted by the consumer because some of the vitamins purchased are, no doubt, already being provided in adequate amounts in the food eaten and additional amounts may not be

necessary or even desirable. Some of the vitamins taken probably could be provided through food at much less cost if a little thought were given to the planning of proper meals.

DANGERS. It is dangerous to depend on vitamin tablets to protect health because all too often this gives a false sense of security and a feeling that food selection no longer is important. Even though all the vitamins one needs were provided in one capsule, protein, calcium, iron, and other minerals are equally important and still must be supplied through food.

Another serious objection to the indiscriminate use of vitamin preparations, however, is the possible harm that may result from the vitamins themselves. The interrelationships between various vitamins is not well known and there is a possibility that a large amount of one vitamin may upset the working balance between it and other vitamins. Except for vitamin A, the effect of large doses of the various vitamins has not been well enough studied, nor is the effect of vitamins when stripped of their original setting, foods, well enough understood to make the general use of vitamin preparations safe. Vitamins should be obtained through well-planned food and, with the exception of vitamin A, should not be taken otherwise except when prescribed by a physician.

Recommended Dietary Allowances

Since good nutrition is impossible unless food furnishes an adequate amount of each of the essential food factors, the National Research Council* has provided a guide, based on the opinions of the most reliable authorities on the subject in the country, recommending amounts of calories, protein, calcium, iron, vitamin A, thiamine, riboflavin, niacin, ascorbic acid and vitamin D which individuals of various ages need each day. These recommended allowances are reproduced in Table 9.

* The National Research Council, set up in 1916, brings together the most authentic knowledge in the country which makes possible cooperative thinking on any scientific problem of national significance. Food is handled through the Food and Nutrition Board within the Council.

TABLE 9
RECOMMENDED DIETARY ALLOWANCES¹
REVISED 1945
Food and Nutrition Board, National Research Council

	Calories	Protein grams	Cal- cium grams	Iron mg.	Vitamin A I. U. ²	Thia- mine mg. ³	Ribo- flavin mg. ³	Niacin (Nico- tinic acid) mg. ³	Ascorbic acid mg.	Vitamin D I. U.
Man (154 lb., 70 kg.) Sedentary Moderately active Very active	2500	70	0.8	12 ⁴	5000	1.2	1.6	12	75	5
	3000	70	0.8	12 ⁴	5000	1.5	2.0	15	75	5
	4500	70	0.8	12 ⁴	5000	2.0	2.6	20	75	5
Woman (123 lb., 56 kg.) Sedentary Moderately active Very active	2100	60	0.8	12	5000	1.1	1.5	11	70	5
	2500	60	0.8	12	5000	1.2	1.6	12	70	5
	3000	60	0.8	12	5000	1.5	2.0	15	70	5
Pregnancy (latter half) Lactation	2500 ⁶	85	1.5	15	6000	1.8	2.5	18	100	400 to 800
	3000	100	2.0	15	8000	2.0	3.0	20	150	400 to 800
Children up to 12 yrs. ⁷ Under 1 yr. ⁸	100/2.2 lb. (1 kg.)	3.5/2.2 lb. (1 kg.)	1.0	6	1500	0.4	0.6	4	30	400 to 800
	1-3 yrs. (29 lb., 13 kg.)	40	1.0	7	2000	0.6	0.9	6	35	400
	4-6 yrs. (42 lb., 19 kg.)	50	1.0	8	2500	0.8	1.2	8	50	400
	7-9 yrs. (55 lb., 25 kg.)	60	1.0	10	3500	1.0	1.5	10	60	400
	10-12 yrs. (75 lb., 34 kg.)	70	1.2	12	4500	1.2	1.8	12	75	400
Children over 12 yrs. ⁷ Girls, 13-15 yrs. (108 lb., 49 kg.) 16-20 yrs. (119 lb., 54 kg.)	2600	80	1.3	15	5000	1.3	2.0	13	80	400
	2400	75	1.0	15	5000	1.2	1.8	12	80	400
Boys, 13-15 yrs. (103 lb., 47 kg.) 16-20 yrs. (141 lb., 64 kg.)	3200	85	1.4	15	5000	1.5	2.0	15	90	400
	3800	100	1.4	15	6000	1.8	2.5	18	100	400

Further recommendations

Copper. The requirement for copper for adults is about 1 to 2 mg. daily. Infants and children require approximately 0.05 mg. for each kilogram of body weight. The requirement for copper is approximately one-tenth that for iron. A good diet normally will supply sufficient copper.

Iodine. The requirement for iodine is small, probably about 0.002 to 0.004 mg. daily for each kilogram of body weight, or a total of 0.15 to 0.30 mg. daily for the adult. This need is met by the regular use of iodized salt; its use is especially important in *adolescence* and *pregnancy*.

Vitamin K. The requirement for vitamin K usually is satisfied by any good diet. Special consideration needs to be given to newborn infants. Physicians commonly give vitamin K either to the mother before delivery or to the infant immediately after birth.

¹ Tentative goal toward which to aim in planning practical dietaries; it can be met by a good diet with a variety of natural foods. Such a diet will also provide other minerals and vitamins, the requirements for which are less well known.

² The allowance depends on the relative amounts of vitamin A and carotene. The allowances of the table are based on the premise that approximately two-thirds of the vitamin A value of the average diet in this country is contributed by carotene and that carotene has half or less than half the value of vitamin A.

³ For adults (except pregnant and lactating women) receiving diets

supplying 2000 calories or less, such as reducing diets, the allowances of thiamine, riboflavin, and niacin may be 1 mg., 1.5 mg., and 10 mg., respectively. The fact that figures are given for different caloric levels for thiamine, riboflavin, and niacin does not imply that we can estimate the requirement of these factors within 500 calories, but they are added merely for simplicity of calculation. Other members of the B complex also are required, though no values can be given. Foods supplying adequate thiamine, riboflavin, and niacin will tend to supply sufficient of the remaining B vitamins.

⁴ There is evidence that the male adult needs little or no iron. The allowance will be provided if the diet is satisfactory in other respects.

⁵ For persons who have no opportunity for exposure to clear sunshine and for elderly persons, the ingestion of small amounts of vitamin D may be desirable. Other adults probably have little need for vitamin D.

⁶ During the latter part of pregnancy the allowance should increase approximately 20 per cent over the preceding level. The value of 2500 calories represents the allowance for pregnant, sedentary women.

⁷ Allowances for children are based on the needs for the middle year in each group (as 2, 5, 8, etc.) and are for moderate activity and for average weight at the middle year of the age group.

⁸ Needs of infants increase from month to month with size and activity. The amounts given are for approximately 6 to 8 months. The dietary requirements for some of the nutrients such as protein and calcium are less if derived largely from human milk.

The recommended allowances are a goal toward which to work for the development of optimum nutrition. They are considered generous enough to cover individual differences in need and to allow for the wide variation which may occur in the nutritive value of a food when influenced by such conditions as the sun. They also provide a margin of safety which will help to tide a person over emergencies when the tissues may be unable to absorb all of the nourishment taken in food or for some unusual need as during a wasting illness.

Obstacles to Good Nutrition

Popular interest in nutrition makes most housewives want to "follow the rules," yet many have such fixed ideas about the foods their families will and will not eat that they find it difficult to make changes. Even though a family may be willing and anxious to have meals providing every essential food and the mother knows all the reasons for including them, she may have too little imagination to rearrange her present routine, or her equipment may be too meager to permit her to put the knowledge into practice. Possibly she has so little money that she is afraid to experiment. Suggestions may help her to overcome the imagination difficulty and show her how to plan good meals that may cost no more than poorly planned meals, but the equipment problem is often serious enough to call for financial assistance.

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CHAPTER III

WHAT CHILDREN OF VARIOUS AGES SHOULD EAT

Babies of today will be the adults who must carry the responsibilities of tomorrow.

If adults are to be equipped with optimum nutrition and positive health, the foundations must be laid during the first years of life. This foundation must be protected and strengthened with good food habits and wholesome attitudes toward food through the preschool, school, and adolescent periods.

Life is a continuous process, each period dependent on the one that precedes it while preparing for the one that is to follow.

I. The Baby

HIS RIGHTS. Every baby has a right to good health and the advantages that go with it—a body that works with efficiency from the time food is put into the mouth until it is transformed into living tissues and energy; a nervous system that will help him to meet the various situations in life with poise and confidence; and mucous membranes so healthy they will be strong enough to resist an army of invading micro-organisms. Good food habits and wholesome mental attitudes will lead the way to these possessions.

During the first few weeks of life, milk alone will supply all the protein needed to strengthen and develop the baby's muscles; all the calcium he needs for well-shaped bones and sound and well-shaped teeth; enough thiamine to give the necessary tone to his digestive tract and all the other muscles; riboflavin to in-

crease his vitality from day to day; and a generous portion of vitamin A to make mucous membranes disease-resistant. If a baby has his mother's milk during this period, it will supply him with all the energy he needs for his "daily dozen" as well as for growth. Since mother's milk is the best food for all of his needs, she should make every effort to provide it for him.

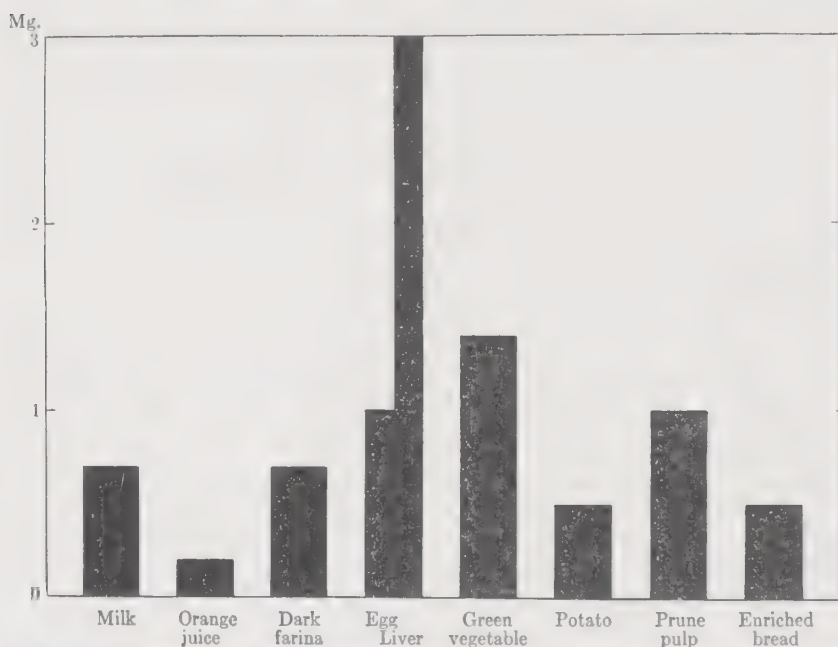


Fig. 6.—Showing how each food in well planned meals contributes iron for a one-year-old child.

1 quart of milk	$\frac{1}{4}$ c. orange juice	$\frac{1}{2}$ c. dark farina
1 egg daily	Liver, twice weekly	3 tbsp. green vegetable
1 small potato	Pulp from 5 prunes	1 slice enriched bread
Iron requirement		7 mg.
This meal plan provides		7 mg.

SAFE SUBSTITUTES FOR MOTHER'S MILK. If, however, the baby is deprived of his mother's milk, unsweetened evaporated milk and dried whole milk are equal in food value to fresh whole milk and are safe substitutes. When a fresh milk supply is questionable or inadequate, there need be no hesitation about using either form. They should be used in preference to sweetened condensed

milk, for babies fed on condensed milk often show signs of low resistance, even though they are plump and may weigh more than other children of the same age. Condensed milk, when diluted to the point where it is palatable, has too little food value to make solid muscles, strong bones, and sound teeth unless it is heavily reinforced with appropriate foods. It should be given

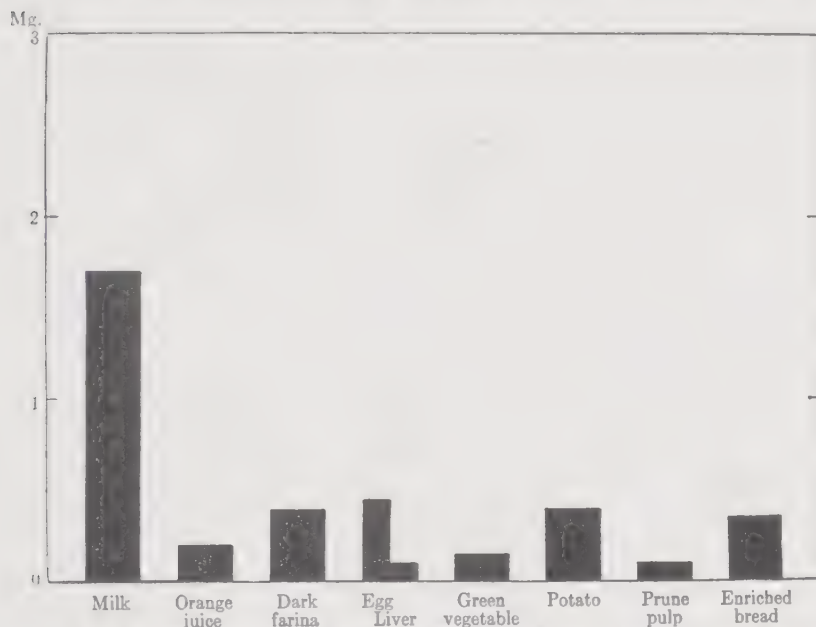


Fig. 7.—Showing how each food in well-planned meals contributes thiamine for a one-year-old child.

1 quart of milk
1 egg daily
1 small potato

$\frac{1}{4}$ c. orange juice
Liver, twice weekly
Pulp from 5 prunes

$\frac{1}{4}$ c. dark farina
3 tbsp. green vegetable
1 slice enriched bread

Thiamine requirement 0.60 mg.
This meal plan provides 0.75 mg.

to children only under a doctor's supervision so that he may suggest additional foods that will help children to have healthy growth.

WHEN OTHER FOODS ARE NEEDED. During the first few weeks, in addition to his milk or milk formula, the baby needs only citrus fruit or tomato juice and sunshine or fish liver oil, prefer

ably both. The citrus fruit or tomato juice will protect the connective tissues, especially the teeth and ends of bones, through the vitamin C they contain. The sunshine will provide the child with vitamin D while fish liver oil will furnish vitamin A as well as vitamin D.

As the baby grows, other foods must be added from time to time to keep growing material in line with his rate of growth and thus prevent hidden hungers which may cause trouble in later years. Cereals will be added for energy and, if whole grain or enriched, they also supply iron and thiamine. Egg yolk and liver will further increase iron and add protein and vitamin A while liver also will add riboflavin and niacin. Vegetables and dried fruits will increase his energy supply and add other factors as well.

Figures 6 and 7 show how the addition of each new food increases iron and thiamine respectively as the child grows and needs more of each of these factors.

In Figure 6, note that:

Liver is the largest contributor to the iron of a one-year-old child, but since it is given not over twice a week, it supplies an average of only about 0.9 mg. per day.

Egg yolk, green vegetables, and prune pulp are the best sources for daily use.

A whole grain cereal and enriched bread supply about 20 per cent of the child's total iron supply for the day.

Even one small potato makes its contribution, providing as much iron as a slice of enriched bread.

Each food is very important; if any one of the foods mentioned were omitted, a hidden hunger in iron might result.

In Figure 7 note that:

Milk is the baby's best source of thiamine; a quart supplies over half the amount he needs every day.

In addition to milk, a whole grain or enriched cereal, enriched bread, a small potato, and an egg yolk each furnish about the same amount.

The earlier new foods are added to the baby's meals, the better his opportunity for acquiring optimum nutrition and positive health, and no time should be lost in introducing them as soon as it is safe. Each baby is an individual problem, though, and will need the special attention of a physician to recommend the amount he can take and the age at which he will be able to digest and use new foods without harm to his delicate digestive tract.

Preparation of the Baby's Food

A mother expects to spend considerable time in preparing the baby's food but a little planning will make it possible to prepare much of it when cooking for the rest of the family. Methods of cooking may have to be changed a bit to meet his needs, to be sure, but the time and work saved will be worth the necessary adjustments in most busy households. Some suggestions for ways of simplifying food preparation when there is a baby in the family follow.

PREPARING HIS FRUIT. When a family is having stewed prunes, applesauce, or stewed tomatoes, fresh or canned, the seasoning may be omitted until after the fruit is done, small portions of the unseasoned fruit or tomatoes put through a strainer for the baby, and the remainder seasoned to suit the family taste. As much as one-half cupful of any one of these may be strained at one time, enough for two or three servings, and unused portions may be stored in a jar in a cool place.

Prunes are so high in iron and so useful as a laxative that they are usually recommended for frequent use by the baby, whether a family has much or little money to spend. They are best prepared by washing, soaking overnight, and cooking in the water in which they were soaked, but without added sugar. They should be cooked slowly until tender. Any juice should be served with the prunes or used to thin the pulp for the baby. When prepared in this way, prunes are very palatable even though no sugar is added.

Applesauce, also useful as a laxative, is preferably cooked without sugar for everyone and the baby's portion can be sweetened ever so lightly to suit his particular need. Some apples will need no sugar while some may require just a sprinkle to counteract a very tart taste. Applesauce that is to be given to the baby should be strained.

The preparation of *orange, grapefruit, and tomato juice*, either fresh or canned, is mostly an individual process which will cause no unusual amount of work. Canned or fresh tomato pulp may be put through a strainer and thinned with water, or with the liquid in the can if canned tomatoes are used, to make it of the consistency which the baby can drink easily.

COMMERCIAL FRUIT AND VEGETABLE PULP. Strained fruit and vegetable pulp that comes in cans is convenient and its food value is as high as that of the fresh product; it may even have more nourishment than the same fruit or vegetable that has been carelessly prepared at home. It is, however, more expensive, and a small strainer and care in preserving food value will make as good a product at home and at less cost.



There is another disadvantage in the use of prepared foods, especially vegetables, which Dr. Senn and Mrs. Newill point out in "All About Feeding Children."* Since the taste of the commercially prepared vegetable is quite unlike the taste of home-cooked vegetables, a child who has learned to like the commercial product during the habit-forming period will have to go through the learning process all over again when he begins to eat home-cooked foods with the rest of the family. Since less attention is paid to his food habits during this period, he may never learn to like vegetables.

In spite of these objections to the commercially prepared foods, however, there may be times when their use seems justifiable, even in low-income families. When a mother works away from home or there is illness in the family, oftentimes the work saved

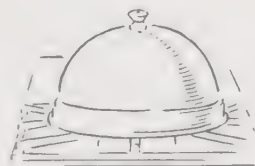
* Senn, M. J. E., and Newill, P. K.: All About Feeding Children. Garden City, N. Y., Doubleday, Doran and Company, 1945.

may be more important, under the circumstances, than the extra cost of the canned product.

PREPARING THE BABY'S VEGETABLES AT HOME. Since the baby can eat almost any kind of vegetable, it will not be necessary to cook them specially for him, provided the family vegetable is cooked in slightly salted, otherwise plain, water. When cooked in this way, the baby's portion can be strained, mashed, or chopped according to the age of the child and the rest of the vegetable seasoned for the family. No vegetable that has been cooked with fat, oil, or fat meat should be given to the baby.

Conserve Maximum Food Value. The baby needs much more nourishment in proportion to his size than older members of the family and special precautions should be observed to save vital minerals and vitamins during the preparation of his food. Suggestions for conserving food value during the cooking of vegetables are given in Chapter X.

Potatoes. To save maximum food value, potatoes should be cooked in their jackets. It would be well to bake them as often as possible and this may be done when a hot oven is being used for other foods. When gas bills must be kept as low as possible, it may not be wise to heat the oven for one potato, but a top-of-the-stove baker, consisting of a metal foundation plate, a rack, and a dome-shaped cover, will serve the purpose very nicely. The potato bakes quickly in this oven and uses comparatively little gas. When inconvenient to bake a potato for the baby, it should be boiled in its jacket. Baked or boiled, it should be mashed and mixed with a little milk to soften to the right consistency so the baby can eat it easily.



COOKING BABY'S CEREAL. Long home-cooking of a baby's cereal is no longer necessary because most cereals as purchased today are already precooked at a high temperature. Cooking in the home takes only the time needed to soften, make tasty, and bring to the right consistency—not over ten minutes.

Since the baby can have almost any properly cooked cereal, his portion may be taken from the family breakfast cereal, provided

it is home-cooked. If it contains coarse grains, it will have to be strained. If the baby is to be fed some time after the family breakfast hour, his portion should be covered and kept hot over steaming water.

Cereals without Sugar. Cereals may be served with milk but should be given without sugar. If a child is trained from the beginning to eat his cereal without sugar and learns to like the flavor of the cereal itself, the sugar-on-cereal habit which often causes so much trouble in later years may be avoided. The use of cereals reinforced with vitamins of the B complex may stimulate the baby's appetite and thus reduce the temptation to add sugar.

EGG FOR THE BABY. The yolk of the egg, usually given during the first year, can be cooked either hard or soft without interfering with the preparation of the family meal. Eggs are hard cooked by placing in cold water, bringing the water slowly to the boiling point, then keeping the temperature just below the boiling point for fifteen or twenty minutes. This method provides a yolk that crumbles or mashes easily and is easy to eat. Even though the white is separated from the yolk before cooking, the yolk may be poached in a cup in the same way as a whole egg.

As babies often are allergic to egg white, it is seldom given during the first year or two but it should not be wasted. It may be given to some other member of the family or, if the yolk is poached, the white can be used in making meringues, fruit whips, and soufflés.

LIVER FOR THE BABY. Since it is a good practice for everyone to have liver at least once a week, a small piece can be given to the baby in place of his egg yolk on days when liver is served to the whole family. Liver that is given to a baby is preferably boiled or baked in a casserole dish. When the family has sautéed liver, only the inner juicy portion should be given to the baby, the brown outer crust being carefully removed.

The less expensive beef, lamb, and pork liver can be used for the baby as well as for the rest of the family. Any of these kinds fit the low-cost food budget better than calf liver. If the family has chicken for dinner, the liver from the chicken may be given to the baby.

Introducing New Foods Slowly

A baby is usually as cautious about accepting unfamiliar foods as he is about making new friends. When a new food appears on his plate, unlike any he has seen before, he often hesitates before tasting it, possibly to "size it up." He is only trying to protect himself and should not be hurried. Nor should an issue be made of his way of becoming acquainted with it. If the food does not appeal to him the first time it is offered, a bit of the same food should be offered again in a few days, and at frequent intervals so he may recognize it as something he has seen before. As he learns to eat it, the quantity served can be increased gradually until he is having the amount recommended by the physician. Forcing or too much over-anxious persuasion may encourage obstinacy, delay the objective, and make food habit training difficult throughout childhood.

Cost of the Baby's Food

THE BEST IS NOT MEASURED BY COST. A little baby has an emotional appeal which makes many families feel no sacrifice is too great to provide the best for him. All too often, however, mothers do not distinguish between "highest in food value" and "highest in cost" and turn to the most expensive foods, hoping in this way to keep the baby well.

Frequently a mother spends two or three dollars a week more than is necessary in buying food for the baby. In low-income families this unnecessary outlay of money for the baby's food often means harmful sacrifices in the amount of health-protective foods that can be purchased for the rest of the family. Some of the hidden hungers that cause minor disabilities in later years may start in this way.

As prices vary throughout the country, no concrete illustrations that will be applicable everywhere can be given, but some of the possible economies are suggested by the questions that

follow. A fuller discussion of food economics appears in Chapter X.

QUESTIONS SUGGESTING WAYS OF ECONOMIZING IN THE BABY'S FOOD:

What kind of milk does the mother buy for the baby? Could she get as much nourishment from a less expensive form? If the physician has recommended an expensive form of milk in a low-income family, does he understand the family's financial situation?

Mindful of the fact that the grade of an egg and the color of its shell have nothing to do with the food value of eggs, could the mother save a few pennies when selecting eggs?

Does she buy ready-to-use fruit and vegetable pulp instead of preparing it at home? If so, do circumstances justify this extra cost?

Does she take the baby's cereal from the cereal cooked for the rest of the family or does she buy expensive preparations especially for him?

Does the mother buy the least expensive kind of liver available in her city or town?

II. The Preschool Child

FORMING HABITS. The parent who is careless about his own eating, yet boastfully says, "My Johnny eats what I do now," presumably does not know that much of the careful attention given to a baby will have been wasted unless the same careful attention is given to his food and food habits after he begins to run about and ask for what he wants. Good food habits must be continued year after year to prevent hidden hungers and the disabilities which follow them in later years.

His Food. If the preschool child is to grow properly, his food must furnish material for the addition of from three to five pounds of solid bone, firm muscle, sound teeth, and other well-developed tissues during the year. It must keep in good condition the thirty or forty pounds he already possesses. It must furnish energy for his endless steps during the day and build maximum protection against illness. Foods listed in the toddler's special Food Guide, if taken every day, will provide protein.

minerals, vitamins and energy for healthy children, such as those shown in Figure 8. These children have a good foundation for freedom from disease in later years.



Fig. 8.—The right food is very important for good growth. Children have a right to foods that will make them strong and healthy. (Courtesy, Extension Service, U. S. Department of Agriculture.)

Food Guide for the Toddler

Three or four cupfuls of whole milk.

A small potato and three or four tablespoonfuls of each of two or more other vegetables, including a green leaf vegetable at least three or four times a week—every day if possible.

One half an orange, one half a small grapefruit, or one-half cupful of tomato, fresh or canned.

One or two tablespoonfuls of prunes or other dried fruit three or four times each week and other fruit as desired.

An egg, every day if possible, at least every other day.

One or two tablespoonfuls of finely chopped meat three or four times a week, including at least one serving of liver; one-third cupful of cottage cheese or one cupful of dried bean or split pean soup on other days.

A home-cooked whole grain or enriched cereal for breakfast with whole grain or enriched bread at each meal.

Sweets in desserts or other diluted form but no concentrated sweet.

A small amount of easily digested fat, such as butter or margarine.

One or two teaspoonfuls of cod liver oil or its vitamin equivalent in some other form.

ADAPTATION TO HIS NEEDS. Although these are the same foods that grown-ups need, the way they are prepared and the amount of each food put on the plate of the preschool child at mealtime must be adapted to *his* rate of growth and *his* particular digestive ability. If the quantity is too small, he will not have enough to grow on; if it is too large, he may be discouraged, eat too little, and fail to grow normally; if the food is prepared in such a way as to use more energy in digesting it than it would require if more simply prepared, there still is danger that he will not grow as he should.

Meeting the Toddler's Food Needs

HIS MEALS. The average preschool child should be able to eat all the food he needs in three meals, planned much like the meals for the older members of the family. In-between-meal feedings are no longer necessary except for children who have such small stomachs that they are unable to eat enough in three meals to satisfy the demands of growth. Children with such slow digestion that it is unwise for them to try to eat one third of their day's food at one time also will need mid-morning and mid-

afternoon lunches. Some children who may not be growing as they should may need extra food for a time until they "catch up" in growth. All of these children are special problems for the attention of a physician who will make proper recommendations for their extra feedings.

Food for the preschool child may, for the most part, be cooked at the same time as food for other members of the family without upsetting family practices. Only such changes as removing portions before the final seasoning is added and cooking without fat will be necessary to make meals suitable for young children.

MILK. Since the child's bones are growing rapidly and his permanent teeth should be strengthened during these years, three cups of milk daily is the minimum amount that will provide sufficient calcium and children grow better if they have a full quart every day. It should not be difficult for the child to take this full quart if one cupful is taken at each meal and the fourth cupful is used in such dishes as milk soups, creamed vegetables, and milk desserts. There is little danger that a cupful at each meal will displace other foods if it is taken in small amounts at intervals throughout the meal instead of being swallowed all at once as soon as the child sits down at the table.

If a child is not taking as much milk as he needs, a small cup or glass that he can handle easily may stimulate his interest in drinking it. Oftentimes a child takes a special delight in pouring milk from a small pitcher set beside his plate and in this way may increase the amount taken. When a child cannot drink the full amount he needs, some of it may be used in place of part or all of the water in cooking cereals as well as in milk soups and other milk dishes. In those rare instances in which a child is unable to take milk in an uncooked form, three cupfuls, or even a full quart, may be concealed in cooked foods.

VEGETABLES. By the time a child enters the preschool group at two years of age, he should be eating a variety of vegetables, but new ones need to be added from time to time so that eventually he will like all kinds. If he objects to strong-flavored vegetables, such as turnips and onions, it may be easier to win his

approval of them if ever so small an amount is added to some other food he already eats. A very little mashed turnip, for instance, can be added to his mashed potato with a gradual increase in the proportion of turnip and a decrease in the quantity of potato until he eats turnip all by itself.

Preparation of Vegetables. Vegetables that are to be given to the preschool child need to be very simply cooked, without fat or oil, and only lightly seasoned. Mashed or finely chopped vegetables which the child has had previous to this time should be gradually replaced by more coarsely cut vegetables to encourage chewing. Chewing stimulates circulation in the gums and helps to strengthen the teeth in their sockets. A small child will enjoy exercising his teeth on such raw vegetables as chopped raw cabbage and strips of raw carrot or raw green pepper. He may be given a small portion two or three times a week but he must be encouraged to chew it thoroughly.

FRUIT. A preschool child can safely have a greater variety of fruit during the third year, though berries with large seeds, such as blackberries and raspberries, may be too irritating to the mucous membranes of his intestinal tract, even at the end of the preschool period. A child may sleep more peacefully if he has cooked fruit at the evening meal. Fresh fruit just before being put to bed may interfere with sound sleep. Bananas that are given to small children need to be very ripe but it is no longer necessary to mash them when a child has learned to chew his food thoroughly. Prunes are still very desirable as a source of iron and as a laxative.

BREAD AND CEREALS. If a child takes all the milk, fruit, vegetables, and protein-rich foods he needs, there is little danger of his eating too much bread, cereals, and other foods made from grain, such as rice and spaghetti. There is real danger from hidden hungers, however, when a child eats so much bread that he refuses to eat his vegetables and drink his milk. He should be taught to "sandwich" bread in between bites of other food so as to avoid too much bread in proportion to his milk, vegetables, and other foods.

Ready-to-eat Cereals. Small children are usually so fond of ready-to-eat cereals they can be used as special treats on holidays and birthdays, but they are a real threat to health when used every day, or several times a week. They are so bulky that a serving about the right size for a small child weighs only about a third as much as the amount of dry cereal used in preparing his home-cooked cereal. The nourishment received from the ready-

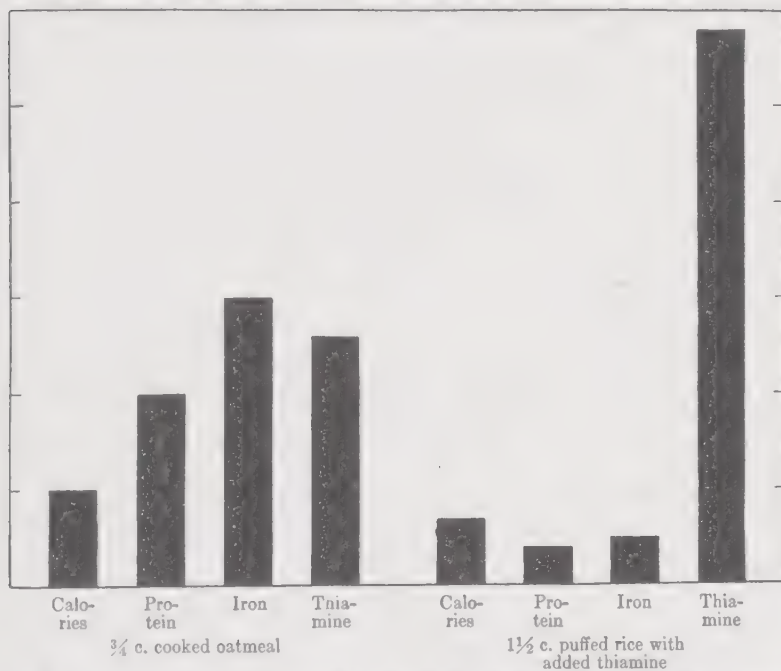


Fig. 9.—Comparison of the food value of oatmeal with puffed rice with added thiamine.

to-eat cereal is correspondingly small. This difference in food value between ready-to-eat and home-cooked cereals is illustrated in Figure 9. The illustration is based on the same amount of cereal by measure, not by weight, representing in both instances the probable amount a child could eat.

PROTEIN-RICH FOODS. Eggs are easily prepared and mothers are sometimes tempted to give more than one a day to a small child.

but one egg daily is the maximum amount usually recommended for children during the preschool period. Some children develop a rash if they have an egg every day, whereas they can take one every other day or a half an egg every day without any difficulty.

Liver, chopped meat, and non-oily fish are rich sources of protein, minerals, and vitamins. One of these should be given on days when the child does not have an egg, or one of them may be given at noon and an egg, or a part of an egg, in custard or other cooked dish at night. Liver is an especially valuable food to help a child to grow strong and vigorous and should be given at least once a week. None of these foods should be fried when given to a small child. Goulashes, heavy soups made with fat meat, and very oily fish, such as sardines, are likewise too difficult of digestion for young children who need every unit they can get from food for growing.

ABUSE OF SWEETS. Sugar has received a bad reputation because its use has been abused. The uplifted feeling which one often receives from sugar and sweets, even though the effect may be only temporary, gives a false sense of being well-fed after eating it.

Since sugar and other sweets contain little material for growing and health protection, and milk and vegetables are likely to be neglected after eating them in generous amounts, children who eat too much candy often become pale and anemic. Sweets also are thought to be one of the primary causes of tooth decay, both because of their immediate effect on the enamel of the tooth and because they dull the appetite for the foods necessary to make and keep teeth sound. The child's teeth as well as his health may be endangered if he is allowed to eat candy and other sweets and if much sugar is put on such foods as fruit and cereals.

Sugar on Cereal. Even a little sugar on cereal may soon grow into a harmful habit for children seldom are content with a "sprinkle." They beg for more and more until the quantity used is often enough to destroy their taste for the cereal itself. As a result, too little cereal is eaten and a child does not get the nourishment he needs. If the sugar-on-cereal habit is never formed, the troubles it causes in later years will be avoided.

Nature's Sugar Bowls. Sugar may be needed for energy but should be used in such dishes as custards and puddings. The very best way in which to take it, however, is in its natural form, in such fruits as apples, oranges, and bananas. Fruits have very aptly been called "Nature's Sugar Bowls."



FATS. Mothers should refrain from giving much fat to small children because it has a tendency to combine with calcium and rob bones and teeth of their building material. It also may retard digestion and interfere with growth. When it slows digestion, it may cause loss of appetite and again lessen the amount the child will eat.

Since preschool children should have little fat, those with the highest food value should be selected. These are cream, butter, and fortified margarine. While most fats supply only energy, these contain vitamin A as well. The cream in three or four cupfuls of whole milk and one or two teaspoonfuls of butter or fortified margarine each day will furnish as much fat as a preschool child needs. It is well to omit fat meat, olive oil, salad oil, and any other fat, except fish liver oil or its equivalent which is needed to supply vitamin D as well as A.

FISH LIVER OIL. Sun baths, fish liver oils, and concentrates all supply vitamin D but fish liver oil is the most reliable for children. Concentrates should be used only as ordered by a physician and sun baths are not always possible in cold weather, nor are they very effective in localities where there is much cloudy weather, or where the air is full of smoke and haze.



Every day a growing child should have one or two teaspoonfuls of fish liver oil or its equivalent to furnish vitamin D. This vitamin will help to build shapely bones and sound teeth and the vitamin A which fish liver oil also supplies is "all to the good" for a growing child can hardly get too much of this factor.

WATER AND LAXATIVE FOODS. Regular elimination is necessary to help in carrying waste products out of the system so as to give the tissues a more favorable condition for growth and good

health. Several drinks of water between each two meals will help to flush the system through the kidneys. Whenever a child asks for something to eat between meals, a drink of water may be given in place of food. Two or three tablespoonfuls of water or fruit juice the first thing in the morning is another way of giving water or fluid and, at the same time, may serve to keep the "early riser" contented until breakfast time.

Whole grain bread and cereals, vegetables, and fruits in amounts recommended in the toddler's Food Guide should stimulate peristalsis and help to produce regular bowel movements, but regular toilet habits are just as important for the system responds to rhythm. Foods that are especially good for counteracting constipation are given in Chapter VII.

FOODS TO BE OMITTED. Even though a child sits at the family table and eats with the rest of the family, certain grown-up foods should be omitted from his meals until his digestive tract is better able to take care of them. Among foods that should be avoided are fried eggs, fried potatoes, doughnuts, pork, sausages, frankfurters, fat meat, much oil, hot breads, pastry, rich cakes, rich desserts, heavy sauces, thick cream, jams, preserves, candy and other concentrated sweets, nuts, pickles, horseradish, pepper, highly spiced foods, tea, coffee, and other stimulants, and sodas and other soft drinks. Tea and coffee are stimulants which contain no food value and may decrease the amount of foods containing growing material which young children can eat. They have no place in the meals of growing children, not even as flavoring for milk.

When a mother says that her children have eaten these foods with no ill effects, she doubtless has in mind the visible signs of harm, such as pain or illness. Invisible harm is more dangerous—the kind that uses energy needed for growing, that weakens the digestive tract, or produces hidden hungers.

MEAL PLANS FOR THE PRESCHOOL CHILD. Unless the meals of every child are carefully planned to protect his health and happiness, it may be too late to remedy the effects of poor eating after the harm has had its beginning. A meal plan is included which may be used as a guide in feeding small children.

Meal Plan for Children from Two to Six Years at Low Cost

tsp.=teaspoonful; tbsp.=tablespoonful; c.=cupful

Breakfast—7:00 to 8:00 A.M.

Cereal	$\frac{1}{4}$ to $\frac{1}{2}$ c. hot cooked cereal, whole grain or enriched, such as oatmeal or enriched farina.
Milk	1 c.; some on cereal, the rest to drink.
Bread	$\frac{1}{2}$ to 1 slice; whole wheat or enriched, plain or toasted; may be spread with $\frac{1}{2}$ tsp. butter or fortified margarine.
Fruit	$\frac{1}{2}$ orange, $\frac{1}{2}$ small grapefruit; or $\frac{1}{4}$ to $\frac{1}{2}$ c. of juice from these fruits; or $\frac{1}{2}$ c. tomato pulp thinned with juice.
Cod liver oil	1 to 2 tsp.; may be given with fruit juice in midmorning.

Midday meal—12:00 to 1:00 P.M.

Egg and one other protein-rich food	1 egg every other day, every day if possible; liver, chopped lean beef, cottage cheese, or dried bean or split pea soup on days when no egg is given; or egg may be given at night and one of these foods served at noon; liver at least once, preferably twice a week.
Vegetables	$\frac{1}{2}$ to 1 medium sized potato, baked or boiled in its jacket; rice or macaroni may be given once or twice a week, with a green leaf vegetable added to supply iron and vitamins; $\frac{1}{4}$ to $\frac{1}{2}$ c. of one other vegetable selected from those in season.
Bread	$\frac{1}{2}$ to 1 slice whole grain or enriched; may be spread with $\frac{1}{2}$ tsp. butter or fortified margarine.
Milk	1 c.; part may be served in creamed vegetable, creamed soup, or dessert.
Dessert	$\frac{1}{4}$ to $\frac{1}{2}$ c. of one of these or similar kinds:

baked apple	junket
cornstarch pudding	rice with prunes
farina with raisins	very ripe banana

Evening meal—5:00 to 6:00 P.M.

Choose one of these	Cereal	$\frac{1}{2}$ to $\frac{3}{4}$ c. whole grain or enriched.
	Vegetable	1 c. soup, such as potato with carrot, lima bean with celery, or spinach; make soup with milk
	Egg	2 to 3 tbsp. any vegetable, plain or creamed. 1, if not given at noon meal.

Milk	1 c.; part may be used in soup, on cereal, or in creamed vegetable.
Bread	$\frac{1}{2}$ to 1 slice, whole grain or enriched; may be made into creamed toast.
Fruit	1 to 2 tbsp. cooked fruit if not given at some other meal during the day.

Mid-morning and Mid-afternoon Lunches, when needed:

One of these combinations	{ $\frac{3}{4}$ c. milk and oatmeal or molasses cookies
	{ $\frac{3}{4}$ c. milk and whole wheat or enriched bread
	{ citrus fruit, if not given at other times
	{ very ripe banana and $\frac{3}{4}$ c. milk

III. Acquiring Good Food Habits During the Years from Two to Six

CHILDREN ARE IMITATORS. If a child is healthy and eats as though he enjoyed his food, with no fear of being scolded or nagged, the chances are that he has been brought up in an understanding household where the adults have had good food habits.

It is much easier for children to develop a wholesome attitude toward food if parents set good examples for children are keen observers and clever imitators. Even before a child is old enough to understand what is being said, he will be impressed by the actions of those about him. Even the tone of a voice, a gesture, or a facial expression which an older member of the family may use to show his disapproval of a certain food may cause a child to have the same reaction. Parents who want to save their children future trouble and embarrassment, which so frequently are the result of poor food habits, will eat what is set before them without unfavorable comment or other signs of dissatisfaction.



HAPPINESS AT MEALTIME. Eating is a big event in the child's

day and he should have a feeling of freedom as he sits at the table with his plate of food before him, but this frame of mind is impossible when a child is constantly repressed with do's and don't's. Fear and other emotional disturbances, too much excitement, irritability, or unpleasant moods of parents or others at the table may interfere with a child's appetite and the forming of good food habits. An unhappy experience in connection with a food, or an unhappy state of mind while a child is eating a certain food, may cause him to become so prejudiced against it that he will automatically refuse it in the future. A prejudice once formed is difficult to overcome and too many prejudices may create a difficult personality.

The Learning Process

Learning to eat is an interesting experience, resembling somewhat the process involved in learning to write. Whatever skill has to be acquired must be gained by trial and error and a child should not be denied the joy of experimenting. Among other things, he must acquire the ability to hold a cup and spoon, judge the distance between the plate and his mouth, and estimate the amount his mouth will hold. These are not simple operations for him and a child deserves a word of praise and an encouraging smile for his efforts instead of cross words, "hurry up," and impatience. He should not be scolded if his spoon arrives at its destination a little lop-sided as in Figure 10, or if his spoon with cereal fails to find his mouth, or if he spills some of his milk, or accidentally pushes some of his mashed potato off the side of his plate. These accidents are all a part of the educational process and should not be prevented by too much assistance from an adult who is trying to be helpful. If the child's attempts do not meet with a friendly smile or word, it is far better for his mental attitude if no attention is paid to his experiments.

DO NOT FORCE A CHILD TO EAT. A child's attitude toward food as well as his health may be influenced by the way his food

problems are handled, and a mother is storing up future trouble for herself as well as the child if she bribes, unduly coaxes, or forces him to eat any food he refuses. Some children need more food than others and appetite is oftentimes a better guide than



Fig. 10.—Learning to eat requires patience from both mother and child. (Virginia Garner—Photography, Courtesy, Harmon Foundation, New York.)

a textbook recommendation. The child is an individual while books give general recommendations which do not fit all children. Some children become discouraged when too large portions are put before them and they may think the job ahead too

big to undertake. Smaller servings often help children to eat more food.

In any event, children should not be forced to eat a given amount of food or to taste a new food. Forceful persuasion may cause such a state of tension that nausea may result. It may even return every time that particular food is served in the future. This revolt against a food may endanger the health of the child if, for instance, the food in question happens to be an essential, such as milk. It is better for a child to go without a certain food for a few days than for him to be deprived of it for the rest of his life.

VARIETY IN FOODS. Introducing new foods was discussed in Section I in connection with the food of the baby. New foods should continue to be added to the meals of the preschool child at frequent intervals. A reasonable variety in food helps to stimulate the appetite. A liking for all kinds of wholesome foods also will be an asset when a child is old enough to eat at a school lunch counter or, later in life, when he has to adjust to conditions in restaurants and at the table of friends. He will be more tolerant and a more agreeable guest if he likes all foods.

START GOOD HABITS EARLY. Eating habits are difficult to change after they have been formed and a habit that seemed cunning at two years of age may become unpleasant at six, a difficult problem at sixteen, and a disagreeable characteristic at thirty years of age. Good eating habits should be started early in life for the sake of the health and happiness of the child and as an aid in making adjustments to environment in later years.

Attention to Details in Good Eating

CAREFUL PREPARATION OF FOODS. Children as well as adults take more interest in food that is well cooked, well seasoned, and attractively served. An adult can explain that a food is too salt or scorched but a child can express his dislike only by leaving it on his plate. Yet all too often he is made to feel that he is doing something wrong when he refuses to eat it. This reminds

us of a physician who used to say that if a child is served burned toast and complains, the child is bad, but if an adult is served burned toast and refuses to eat it, the toast is bad.

ATTRACTIVE COMBINATIONS. A combination of foods attractive to look at is often as important as the taste. If food appeals to



Fig. 11.—A preschool child properly seated at the table with a good view of her plate. (Courtesy, Federal Works Agency, Washington, D. C.)

the eye, children are more easily tempted to eat than when a monotonous combination is set before them. Creamed fish, peas, and sweetpotatoes make a much more interesting and appealing combination than creamed fish, mashed white potato, and creamed white turnips.

COMFORT IN EATING. A child needs to feel comfortable as he sits at the table so that his mind will not be distracted by his attempts to get into the right position to handle spoon and fork. His feet should be properly supported so he will not feel as though he were slipping out of his chair as he leans toward the



Fig. 12.—A suitable cup that encourages the drinking of milk. (Virginia Garner—Photography. Courtesy, Harmon Foundation, New York.)

table. He should be able to look down on his plate like the little girl in Figure 11. He should be able to see all foods clearly and his elbows should be above the edge of the table so he can manage spoon and cup with ease. Few adults could manage to eat gracefully and without spilling food if their chins were on a level with the edge of the table.

A child should have a small cup that will not break, one he can handle without fear of dropping, as shown in Figure 12. This cup may be filled two or three times during the meal which often helps a child to drink his full cupful.

Do's and Don't's in Good Eating

Food should provide enough of each growth and health essential.

Regular meal hours, by the clock, should be established.

Avoid eating between meals. This does not apply to those who are unable to take all the food they need in three meals or who require extra nourishment.

Children should be taught to chew food well before swallowing it.

Children should be taught to drink no water when there is food in the mouth.

A child should be taught to drink his milk in small amounts at intervals throughout the meal, not a full cupful as soon as he sits down at the table.

Make servings small to encourage children to eat, with second helpings as needed.

Serve foods attractively and season tastily.

Avoid emotional disturbances, excitement, fatigue, constant scolding and nagging, and too much attention.

Do not force a child to eat.

Set the child a good example.

Avoid standards for table manners that are impossible for a child to reach.

IV. The School Child and His Nutrition

A NEW ENVIRONMENT. The six-year-old can no longer turn from one thing to another at will for he must adjust to school routine, learn to concentrate on projects that are planned for him, and become accustomed to working with others. This means

loss of freedom and in its place are the restrictions of school life, meeting of strange people, and working in unfamiliar surroundings. Such adjustments are often difficult for a small child and may cause fear and unhappiness. They frequently result in nervous tension which may interfere with digestion and the complete assimilation of food eaten.

MALNUTRITION IN THE SCHOOL CHILD. The average school child may feel well but frequently he loses the healthy, vigorous appearance which is characteristic of good nutrition and which he possessed before he entered school. This appearance often raises the question as to whether his food is as carefully regulated as it should be.

A project carried out jointly by the Pennsylvania State College and the Pennsylvania Department of Health would indicate that his food is neglected. In this project, 7000 school children were examined for various nutritional deficiencies and only one child in every seven was given a rating of even fair nutrition. This is a startling situation for if these deficiencies are uncorrected, as pointed out in Chapter I, some of them will, no doubt, develop into incurable diseases and others will lead to disabilities which may influence the amount and quality of the work of the individual.

Presumably not all of the poor nutrition among these 7000 children could be attributed to improper food, but an analysis of the food the children ate showed a high per cent of diets with one or more factors below the requirement. Results such as these indicate that poor food plays a very large part in the amount of malnutrition common among school children and the food of the school child should receive very careful attention.

The Borrowing Process. If a child's food does not supply all the nourishment he needs, his tissues will draw on the energy, calcium, and other factors which have been stored in previous years. Such a borrowing process is dangerous for it is likely to result in hidden hungers, retarded growth, and lowered vitality and resistance. Malnutrition among school children is an economic as well as a health problem for, in addition to the health hazard, it may interfere with the child's progress at school. Many

malnourished children find it difficult to concentrate and may require more attention from the teacher than those who are properly nourished. They are, therefore, more costly to educate.

The Food of the School Child

Every school child should have every food essential every day. Every food in his meals should carry maximum nourishment to prevent "borrowing," and it needs to be prepared as simply as possible so the child will not be using energy in digesting food that should be building a sturdy body.

The most satisfactory meal plan for the six-year-old is much like the one suggested for the preschool child, the amount of milk remaining the same, other protein-rich foods, fruits, and vegetables increasing ever so gradually. The child of school age can take almost any vegetable now and more raw apple and other raw fruit, though it is safer for a child who is sensitive to changes in both food and environment to have such cooked fruit as applesauce and stewed pear at night for another year or more. He can have some of the chopped raw cabbage prepared for the family salad and more generous servings of raw carrot, green pepper, and yellow turnip strips, that is, if he can be trusted to chew them so thoroughly they will not upset his digestion. With milk, eggs, fruit, and vegetables provided in right amounts for health protection, the school child's appetite can be relied upon to determine the quantity of bread, cereals, and other high calorie foods necessary to supply him with energy, keep up his vitality, and enable him to gain as he should.

As a child feels more at home in his new environment and nervous tension grows less, his meal pattern will merge gradually into the pattern used in planning meals for his older brothers and sisters. By the time he is eleven years old, it will be safe for him, in most instances, to eat practically the same type of meal and the same kind of food as his parents. There will be exceptions, though, for a child still needs all his strength for growing and foods that are difficult to digest, such as pastries, fried foods, and heavy sauces, need to be avoided to conserve energy.

Meals for School Children

Every child needs the foods suggested in the Food Guide in Chapter II. These should be selected with utmost care to provide maximum material for growth, health protection, and energy.

BREAKFAST. If properly planned, his breakfast will include at least three-fourths cupful of a home-cooked whole grain or enriched cereal, and as much more as a child wants; bread with the cereal—if the child wants it—or two or three slices of whole grain or enriched bread in place of the cereal; a cupful of milk, part of which will be used on his cereal; and some fruit or tomato. Other foods, such as a strip of bacon or an egg, may be added if the child can take them without displacing milk, fruit, and cereal or bread, and if the family budget will permit.

Figure 13 shows the difference in the nourishing qualities of a breakfast such as the one just outlined and a breakfast that is all too common, rolls and milk diluted with coffee. The milk, cereal, and fruit breakfast, referred to as Breakfast I, provides one third of the day's requirement of each of the essential nutrition factors with the exception of slightly less iron, which will be supplied in green leaf vegetables, egg, liver, and other foods that supply iron in the other two meals during the day. Breakfast II, on the other hand, is inadequate in all factors except thiamine and had rolls been made with flour which had not been enriched, the thiamine content of the breakfast would be very low as would the iron as well. The food value of a breakfast consisting of rolls made with unenriched flour and milk diluted with coffee is shown in Figure 14.

LUNCH. Lunch needs to be more than a haphazard pick-up meal. Whether eaten at home or bought at school, a good lunch will include a cup of milk and a generous portion of fruit or vegetable, possibly both. These need to be supplemented with as much whole grain or enriched bread as a child wants. A hot soup or other hot dish is most desirable in cold weather. It would be best for the child if he could have bean or pea soup, liver, meat, fish, or other protein-rich food in the middle of the day during the first year or two at school. This is more easily accom-

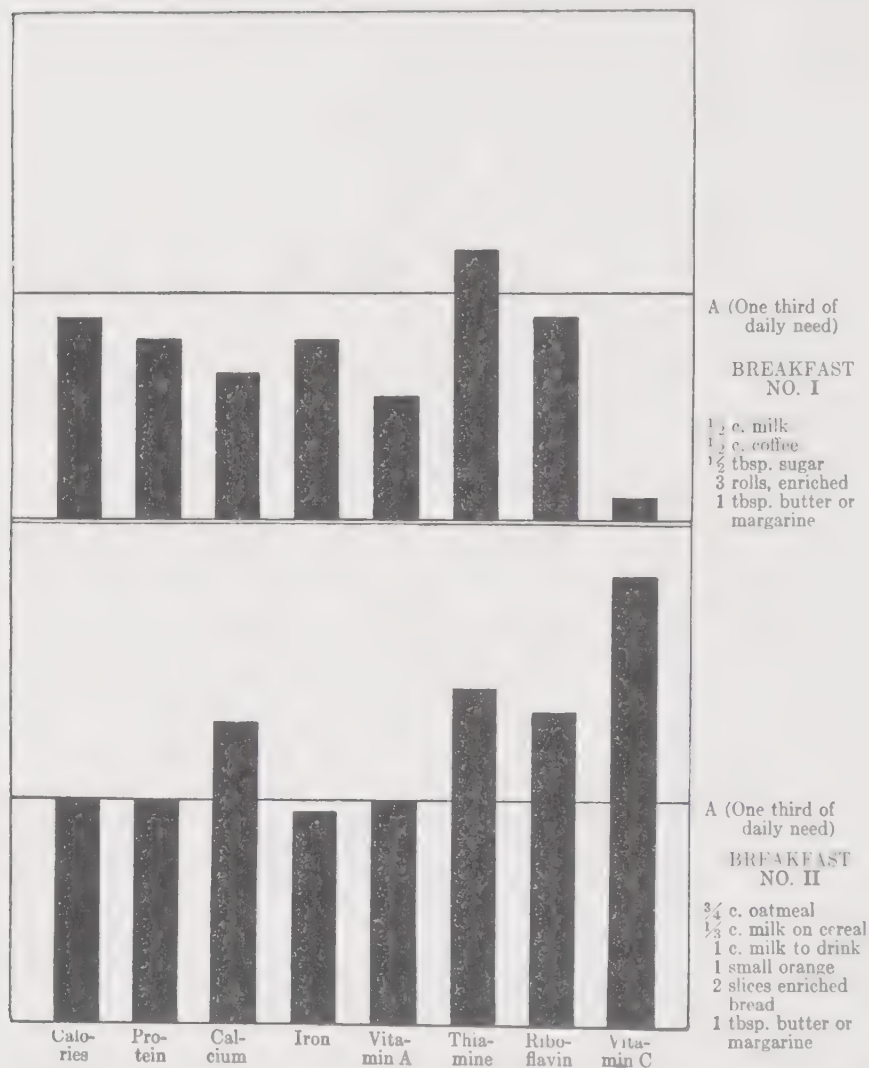


Fig. 13.—Comparing two breakfasts for a child from six to eight years of age. A child's breakfast should provide one third of the nourishment he needs for the day. This is represented by the line marked A.

plished when the child eats his lunch at home, however, and is one of the practices that may have to be modified to meet existing conditions.

EVENING MEAL. The evening meal will be much like the noon

meal with milk, one or more vegetables, whole grain or enriched bread, a hearty dish with meat, fish, beans, or other legumes, or cheese if one of these foods has not been given at noon, and a dessert.

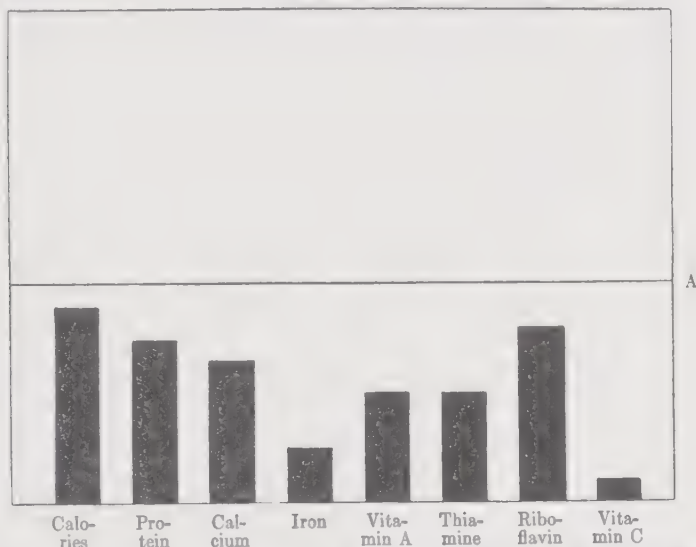


Fig. 14.—A poor, but common, breakfast—deficient in every factor.

$\frac{1}{2}$ c. milk, $\frac{1}{2}$ c. coffee, and $\frac{1}{2}$ tbsp. sugar

3 rolls (made with non-enriched flour) and 1 tbsp. butter

The food value of this breakfast is compared with the nourishment a child from six to eight years of age should receive in his breakfast, as shown by Line A. Compare with Breakfast No. II in Fig. 13.

BETWEEN MEALS. If a child craves food during the morning and afternoon, possibly it is because he nibbles candy, sweet chocolate, and the like. These nibbles are dangerous and work in a vicious circle because they destroy the appetite for essential foods at mealtime and are often eaten because the essential foods have not been included as part of the regular meals. Cravings for food between meals also may be the result of habit. In such instances, a drink of water often satisfies a child who asks for something in the middle of the morning or afternoon. Each child needs at



least one cupful of water between each two meals during the day but it may not be advisable for a child who has enuresis to drink any liquid after late afternoon.

When mid-morning and mid-afternoon lunches are recommended by the physician, food given at these times should be carefully planned and regularly given "by the clock." Examples of foods appropriate to serve for these between-meal snacks are: a raw vegetable sandwich on whole wheat or enriched bread; bread and molasses; cooked fruit and an oatmeal cookie; banana or other suitable fruit; fruit or tomato juice; milk and a molasses cookie; or milk and a banana. Milk digests so much more slowly than bread and fruit, it is usually included only when the lunch can be given at least two hours before the next meal.

Good Food Habits for the School Child

Good food habits still need encouraging:

Every child should sit at the table when eating, eat slowly, and be in a relaxed and happy frame of mind.

All food should be thoroughly chewed and not washed down with liquid.

The same schedule for meals and the same meal pattern should be followed every day, including vacations, holidays, and Sundays.

Forcing a child may create an unwholesome attitude toward food. Bribing and coaxing a child may give him the impression that he is eating to please someone else and may prevent a child from acquiring the right attitude toward food. He will need more and more urging as he becomes more and more the center of attention.

The child whose mother says: "You don't like oatmeal, do you, dear?" usually decides he doesn't like it. A much better approach is: "This oatmeal is good!" or "We like oatmeal, don't we?"

V. Teeth Are a Nutrition Problem

CARE OF THE TEMPORARY TEETH. Mothers are often slow in grasping the significance of good dental conditions and are not easily convinced of the need for having the temporary teeth repaired. Some dentists do not take kindly to the filling of the teeth of small children. Children offer such vigorous protests that the filling of the teeth of the preschool child is generally neglected. Yet this is a very important period for attention to teeth and various reasons may be given why temporary teeth should be filled and saved as long as possible.

If the baby teeth are not attended to, teeth may come in crooked and cause malocclusion which makes proper eating difficult. Decayed teeth in the mouth may cause sound teeth to become defective and since permanent teeth come in before all temporary teeth are lost, carious temporary teeth are a threat to permanent teeth.



Carious teeth and sore gums at any time make mastication difficult. If food is not properly chewed, digestion may be delayed or upset and fermentation, irritation of the intestinal tract, and malnutrition or other abnormal condition may result. Disease germs lodge and grow in the cavities, poisons develop and are absorbed by the system, and again good nutrition and health are in danger.

Appearance. In addition to the effects of poor dental conditions on health, there is a point too often overlooked which increases in significance as a child grows older. This is the influence of carious teeth, especially those located in the front of the mouth, and of the loss of teeth or poorly shaped teeth on the appearance of the individual boy or girl. Some boys and girls whose teeth are conspicuously unattractive shrink from meeting people, and hesitate to apply for positions for which they are well prepared. Sensing the fact that their appearance may interfere with employment, they may grow shy and self-conscious and lose self-confidence. If such conditions lead to an inferiority

complex, personality difficulties may develop as well. Every child needs good teeth for the economic and social aspects involved as well as for the sake of health protection. Care should begin as early as possible.

Extent of the Problem

The seriousness of the dental problem is evident from dental clinic records which show that not over ten children in every hundred have teeth in good condition when they make their first visit to a dentist. In fact, ninety out of every hundred children have caries in their first-year molars. According to the records in the Dental Clinics of the Community Service Society in New York City, the average child of school age has from six to eight cavities upon his first visit to the dentist. At seven years, 69.7 per cent have caries in the six-year molars and at eleven years, 84.1 per cent. Many have even lost one or more of their six-year molars:

	Percent with One or More Six-Year Molars Missing*
At 7 years of age	1.3
At 8 years of age ..	2.5
At 9 years of age	10.7
At 11 years of age	20.7

In the Guggenheim Dental Clinic in New York City, where preschool children are treated, 48 per cent of the children two years of age had an average of two cavities and 80 per cent of the five-year-old children who were examined had an average of over four cavities.† This is a serious handicap to children and much of it is unnecessary, because proper attention to food and regular dental care will decrease the number of caries and the extent to which they develop.

* Figures supplied by Joelle Long, Community Service Society, New York City.

† Figures provided by Dr. J. O. McCall, Guggenheim Dental Clinic, New York City

Causes of Dental Caries

There seems to be no general agreement about the specific cause or causes of dental decay. Some investigators contend that *Bacillus acidophilus* in the mouth is the responsible factor. Others claim that sugars and starches cling to the teeth and the fermentation that follows destroys the enamel. Another group of investigators is studying the influence of fluorine. Systemic diseases, endocrine disturbances, and inherited tendencies are also mentioned as contributing causes of tooth decay.

Food. Dr. May Mellanby of England has done some work which indicates that the enamel of the teeth is defective when vitamin D is provided in insufficient amounts. Work done by Wolbach of Harvard University, in collaboration with the Forsyth Dental Infirmary in Boston, has obtained results indicating that the enamel of the teeth begins to disintegrate as soon as vitamin A is provided in insufficient amounts. It has been known for years that vitamin C influences the preservation of the teeth. Boyd and Drain of Iowa report the arrest of dental caries in children by giving them diets rich in minerals and vitamins and comparatively low in carbohydrates. The food of the mother during the prenatal period will influence the teeth of the baby as has been shown by several investigators.

Protection of the Teeth

FOODS TO PROTECT THE TEETH. From the bits of evidence presented previously, it is fairly certain that food has a very direct relation to the soundness of teeth. Everyone agrees that a tooth must be well calcified to be strong, for which calcium, phosphorus, and vitamin D are essential. It also seems clear that vitamin A and vitamin C are necessary to increase the resistant qualities of teeth. These foods, then, are necessary for sound teeth and the prevention of decay:

At least three cupfuls of milk throughout the growing period to supply calcium, phosphorus, and some vitamin A.

One or two teaspoonfuls of cod liver oil or its vitamin equivalent to provide vitamin D and vitamin A.

Citrus fruit or tomato and dark green leaf vegetables to supply vitamin C.

All other essentials for good nutrition.

Measures to insure sound teeth must start with protective foods and sunshine or fish liver oil for the mother during the prenatal period.

The baby must have proper food and some source of vitamin D.

Good food and good dental care must continue throughout life.

There must be foods that need chewing to increase the flow of nourishment to the teeth and strengthen the teeth in the jaws.

EARLY CARE. Since carious and abscessed teeth interfere with digestion and the utilization of food, and the neglect of teeth is held responsible for many cases of rheumatism and diseases of the eyes, ears, heart, kidneys, stomach, intestines, and nerves, all children with dental defects are in danger of disabilities later in life. Feeding the teeth as well as early care is a very urgent nutrition and public health problem and the earlier attention is directed to the preservation of teeth, the longer the teeth may be preserved and the fewer illnesses will result.

CHAPTER IV

ABOUT ADOLESCENTS AND ADULTS

Adolescents grow rapidly. They need generous amounts of protein, minerals, vitamins, and energy to meet the demands of growth, activity, and various changes going on in the body, to protect teeth, and to keep up resistance.

Many adults are victims of dietary deficiencies from earlier years but many disabilities still may be avoided by establishing good food habits NOW.

Comfort is so dependent on health, health is so strongly influenced by food, that health protective factors should be abundantly supplied in the meals of elderly adults.

I. The Adolescent

APPEARANCE. Appearance and personal charm are valuable assets when the adolescent of working age goes out to find a job, as was shown in a study of a group of boys and girls who had just finished high school and had accepted their first positions. One feature of the study was an interview with employers who were asked for the basis they used in selecting employees. The majority of them said that personality ranked first in their list of requirements for new employees and third in promoting experienced workers to positions with more responsibility.

While many factors contribute to personal charm and personality, any health worker who has worked with young boys and girls knows that good nutrition improves appearance and helps to make young people alert and vigorous, just as work done in nu-

trition laboratories shows that good nutrition improves appearance, vigor, and alertness of experimental animals. Some well-fed animals develop a regular "Beau Brummel" appearance on superior diets.



Fig. 15.—Good food helps to produce vivacity and charm as well as good health. (By Ewing Galloway, New York.)

These qualities add so much to personal charm that good nutrition is bound to help an adolescent who is going out to seek employment. Even a boy or girl whose clothes are "spic and span," whose appearance is chic, and whose manners are perfect, may be at a disadvantage without the vitality that goes

with good nutrition. Granting that food, especially during the growing period, can influence the chances for employment, public health has a real responsibility in helping adolescents to become well nourished and to look well nourished for the sake of their success in the economic world as well as for their health.

YOUTH'S OBJECTIVES. Adolescents are more interested in having a good time than in eating to influence a future which seems far away and indefinite, however, and it may be necessary to adjust the emphasis to their immediate problems and interests in encouraging them to change food habits. The majority of adolescent girls want glossy hair, bright and shining eyes, and smooth, unblemished skin. They want vitality and vigor as shown in Figure 15. Adolescent boys want to be like some of their heroes who have strong muscles and a daring spirit. Since these characteristics are strongly influenced by the same foods that promote growth and health, there is no reason why boys and girls should not eat to develop attractive and forceful personalities through the foods that provide maximum health protection.

Food for the Adolescent

APPETITE. The huge appetite of adolescents, especially the adolescent boy, is often a problem, but it is Nature's gift to help them to meet the demands of rapid growth, increased metabolism, and unusual nervous tension occurring during this period. Second and third helpings are not to be wondered at, for a fast-growing boy of fifteen or sixteen may need at least 25 per cent more energy than his father. Boys of this age often gain twenty or more pounds a year in weight and from four to six inches in height. It takes a large amount of food for such increases in stature, and a boy who is also active in sports may need as many as 4000 calories a day. The boy in Figure 16 will want a tremendous amount of food for dinner. Gains in weight during the adolescent period as compared with gains during the rest of the growing period are shown in Figures 17 and 18.

Many adolescent girls also have sizeable appetites, though

finicky appetities are not uncommon and present an even greater problem in family meal planning than the huge appetite of the boy. As a result of this uncertain appetite, a girl often wants pickles and other sour food and usually takes only dainty bits



Fig. 16.—The vigorous life of an adolescent boy increases his need for energy. It should be provided through an increase in health-protective foods as well as calories. (By Ewing Galloway, New York.)

from the plate of food set before her. She eats so little at meal-time that she usually craves sweets between meals to supply the energy she needs to "keep going." These high calorie foods may keep her weight so near the average that the danger of hidden

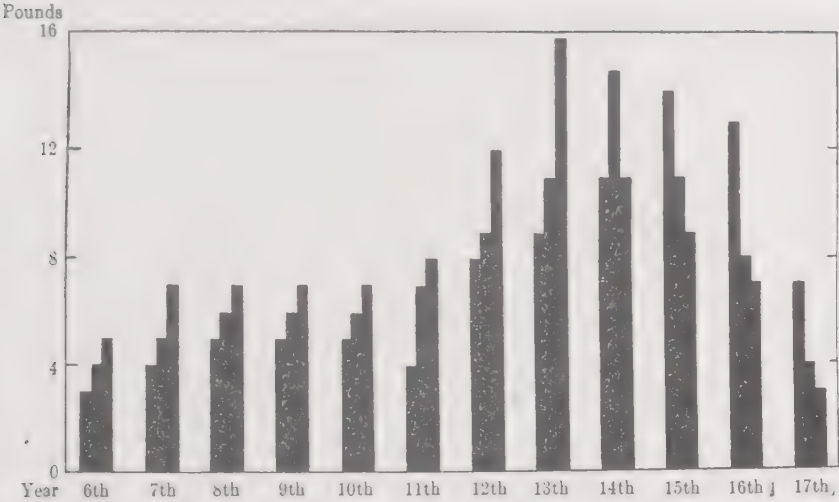


Fig. 17.—Increases in weight for each year of a boy's life from six to seventeen years of age. Each column represents the gain for one year, the left-hand column in each cluster of three representing the gain for short boys, the middle column for boys of medium height, and the right-hand column for tall boys.

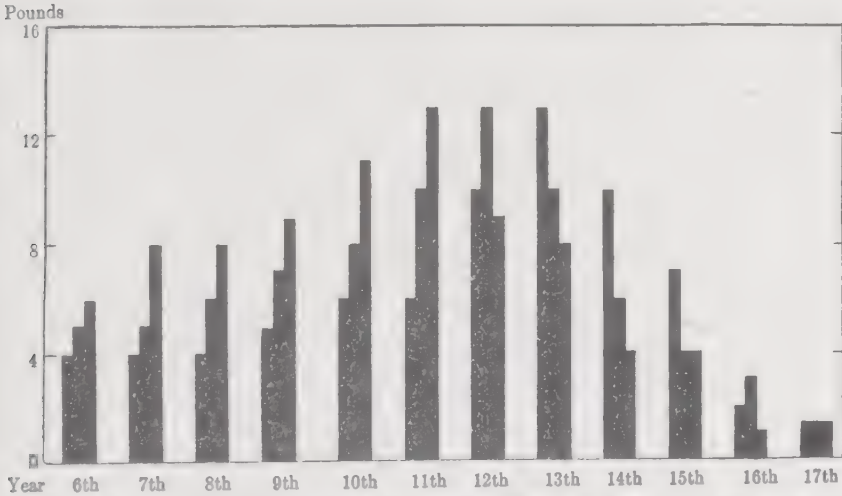


Fig. 18.—Increases in weight for each year of a girl's life from six to seventeen years of age. Each column represents the gain for one year, the left-hand column in each cluster of three representing the gain for short girls, the middle column for girls of medium height, and the right-hand column for tall girls.



Fig. 19.—Good food is necessary for good physical development, strength, and resistance. Adolescents need special attention during these rapidly growing years. (Courtesy, Extension Service, U. S. Department of Agriculture.)

hunger is likely to be overlooked. The appetite of the finicky eater often has to be catered to for a year or more to bring her safely through this period while she finds herself emotionally

Remonstrances and scoldings are of little value for the girl is not responsible for her appetite at this time and has little control over it.

FOOD NEEDED. The food of both the adolescent boy and girl needs frequent reviewing to forestall the ill effects of hidden hungers from too little food as well as from an unwise selection. This danger is not just a myth as was shown by the tests given to the high school students and referred to in Chapter I. Needs are so great during this period that the adolescent who wants the splendid physical development shown in Figure 19 should have large servings of milk, for growing bones and teeth need the calcium it contains and internal activities must have more calcium at this time. Adolescents also need larger servings of fruit, vegetables, eggs, and protein-rich foods. And having eaten generous portions of these foods, the ever-hungry boy and girl will need extra portions of bread, cereals, and other foods that will provide energy and maintain weight at a desirable level.

Weight of the Adolescent

It may be dangerous to let weight fall 10 per cent or more below the average because underweight often means low resistance as well as easy fatigue and may be accompanied by a condition that will lead to tuberculosis. An overweight condition is likewise dangerous and often humiliating for the individual. It may indicate some endocrine disturbance or other abnormal condition or it may be due to too many high caloric foods or to too little exercise. Both overweight and underweight individuals need a thorough physical examination with advice from a physician as to the course to follow. If no physical abnormality is found which will account for the deviation from a satisfactory weight, then the underweight adolescent can safely gain through increasing his caloric intake and the overweight boy or girl can reduce through decreasing his calories. Suggestions for gaining and reducing weight are given in Chapter VII.

Protecting the Teeth

The teeth of the adolescent will decay rapidly unless they are well protected with a quart of milk daily to provide calcium, phosphorus, and some vitamin A; one or two teaspoonfuls of fish liver oil or its vitamin equivalent to supply vitamin D and additional vitamin A; and citrus fruit or tomato to furnish vitamin C.

Foods that require considerable chewing will stimulate circulation, increase the amount of nourishment brought to the teeth, and also help to strengthen them and make them better able to resist decay. Such foods as apples and raw vegetables afford excellent exercise and should be used often.

Food Guide for the Adolescent

Milk	At least four cupfuls daily; additional milk affords greater protection To build firm muscles, protect teeth and bones, aid internal processes, and increase nervous stability.
Fruit	Citrus fruit or tomatoes—a generous serving daily
Vege- tables	To protect teeth, joints, and all connective tissues; supply pep and vitality; and prevent weariness. Dried fruit—several times a week To provide iron and a laxative. Potatoes—two or three daily To provide energy and add other factors for general health protection. A green or yellow vegetable—every day To increase resistance, vigor, vitality; build up hemoglobin. A raw vegetable, such as cabbage or carrots—three or four times a week To increase the mineral and vitamin supply; to provide exercise for jaws and teeth. One other fruit or vegetable daily To increase mineral and vitamin supply.
Eggs	Preferably one every day; sometimes two eggs daily for very rapidly growing boys if income permits To increase muscle foundation material; increase hemoglobin; aid in increasing vitality and resistance.

Meat	<i>Four or five ounces of meat or fish—four or five times weekly</i>
Fish	<i>and oftener if income permits and the family wishes; liver at least once weekly</i>
Legumes	<i>Legumes or cheese on days when no meat or fish is served, or in addition to them</i>
Cheese	<i>To strengthen muscles; raise hemoglobin level; stimulate the appetite; increase alertness and vitality.</i>
Bread	<i>One or both at each meal, at least half whole grain or enriched</i>
Cereals	<i>To furnish energy in a readily usable form; stimulate the appetite and raise the hemoglobin level, if whole grain or enriched products are used.</i>
Fats	<i>Some fat at each meal, in moderate amounts only</i>
Sweets	<i>To supply energy; increase resistance if butter or fortified margarine is used; to give a satisfied feeling after eating.</i>
	<i>Sweets in small amounts only</i>
	<i>To supply calories.</i>
Cod liver oil	<i>One or two teaspoonfuls daily or its equivalent in other forms</i>
	<i>To increase and maintain good resistance; to protect bones and teeth.</i>
Water	<i>Frequent drinks of water between each two meals</i>
	<i>To help in flushing waste products from the system.</i>

BETWEEN-MEAL LUNCHES. Many adolescents need so much food it would not be advisable for them to try to eat it all in three meals, even though it were possible. A fourth meal in the middle of the afternoon is often necessary and it should be planned to carry a maximum amount of nourishment through such foods as milk, fruit, and whole wheat or enriched bread. Some good in-between-meal lunches consist of sandwiches made with whole grain or enriched bread and cheese or peanut butter; bananas and milk; molasses cookies and cooked fruit; fresh fruit; and chopped raw vegetable sandwiches. These mid-afternoon lunches will help to allay the craving for sweets, pickles, ice cream cones, ice cream sodas, and the like. Many boys and girls crave sweets to supply energy the meals should have supplied. While a moderate amount of sweet may not be harmful, most growing boys and girls are going to eat more sweet than is good for them if meals are not sufficiently nourishing.

TEA AND COFFEE. The stimulating effect of tea and coffee may

increase nervous tension and interfere with the best use of food or they may give a satisfied feeling so that too little of the nourishing foods will be eaten. They are better omitted until growth is complete when each person may decide for himself whether or not to include them.

II. The Adult

THE "NEGLECTED AGE." Possibly the title, "the neglected age," should be applied to adults rather than to preschool children. One reason for the neglect of the study of foods eaten by adults is that public health has been so interested in discovering and correcting diseases in their initial stages that the importance of good nutrition in preventing even the symptoms of disease has been overlooked. Another reason is the attitude of so many adults who feel "they are what they are and nothing can be done about it."

Many an adult whose appetite has been his chief guide in selecting food for many years has an inflexible state of mind about eating which makes changes in food habits difficult, even so simple a change as adding two cupfuls of milk daily. Many who prefer to save for some immediate desire, such as a fur coat, are willing to sacrifice the food and take a sporting chance that they will not suffer physically. Many have visual minds that react to the reasons for acquiring good nutrition which are presented to them orally somewhat as did a man who was told how important it was for him to drink milk. He was not at all impressed until he saw a chart representing the various benefits to be derived from milk and then he said: "You could have talked forever about how much I need milk but it would not have meant much to me. That chart convinces me."

Work done in the nutrition laboratory at Columbia University has shown how proper food during the whole life cycle from birth throughout life may prolong the number of useful years for the adult and postpone the infirmities of his old age. This bit

of research was publicized under the heading, "Add ten years to your life." But until recently little has been done to show what the adult can do to improve his own nutrition when his food habits have not been of the best during the years that have passed.

Deficiencies in Adult Diets

Some years ago, Haggard and Greenberg of Yale University made a study of the influence of between-meal lunches on the physical condition and morale of workers in an industrial plant. They found that workers receiving lunches between meals were better able to concentrate, less tired at the end of the day, less frequently absent, and more cheerful during working hours than those who did not have the extra food. Those who had the extra food also did more work.

While the emphasis in this study was on food eaten between meals, and no mention was made of the make-up of the three regular meals, the results would indicate that the tissues of the workers needed some factor or factors the food was not supplying. It suggested that workers in industry, and other adults as well, are quite likely to have hidden hungers which may interfere with their health, their morale, and the amount of work they can do. This and other similar demonstrations indicate the need for focusing attention on proper food for the industrial worker in particular, and for all adults in general.

During World War II, the growing awareness of the importance of nutrition led to the formation within the National Research Council of a Committee on the Nutrition of Industrial Workers. One of the first projects undertaken by this committee was a survey to find out what workers actually were eating and how far their food met their needs. The dietary allowances set up by the National Research Council were taken as a basis for judging the adequacy of the diets. Results were similar everywhere—too few green leaf vegetables, too little citrus fruit, too little milk.

INFLUENCE ON PHYSICAL CONDITION. In one industrial plant

in which the physical condition of the workers was checked in connection with the study of food eaten, the food value of the diets and the physical condition of the workers showed a very close relationship. For example, 53 per cent of the workers had a low level of ascorbic acid in the plasma (avitaminosis C) and 46 per cent of the diets were deficient in this factor. While the diets of 43 per cent indicated low riboflavin and only 9 per cent of the workers had the characteristic cracks at the corners of the mouth and oily desquamation at the corners of the eyes and the angle of the nose, yet 43 per cent had other symptoms which often are associated with ariboflavinosis. Though only 15 per cent of the workers had diets low in vitamin A, nearly every worker had vitamin A lesions (avitaminosis A) in the conjunctiva as shown by the biomicroscope.

Deficiencies in varying degrees were found in other factors, iron intake being most nearly satisfactory. Such inadequate diets can hardly be confined to adults who work in industrial plants. These figures doubtless are representative of the whole adult population.

CORRECTION OF DEFICIENCIES. The purpose of this committee was to increase production during the war and their next step was to stimulate improvements in the food of the war workers. The hugeness of the undertaking and the urgency for immediate results in increased production did not make extensive evaluations of improvements possible, but the committee reports that the health, morale, and stability of the workers were improved and hours of working were increased at the rate of ten and one-half days per person per year.

A specific illustration of the improvement in health and morale of workers through correcting deficiencies in their food is provided in an experiment by Dr. R. M. Wilder of the Mayo Clinic in Rochester, Minnesota. In this experiment, he gave thiamine to a group of women whose diets were known to be deficient in this factor. As a result, their working capacity was increased by 100 per cent, the quality of their work was increased, the women were much more cheerful, they were absent much

less frequently, they worked with less irritation, and they showed a much better spirit of cooperation. Equally good results have been obtained with other factors, particularly niacin and vitamin A.

So consistently is the health and morale of workers improved when diets are made adequate in all respects that one need not hesitate to encourage good food selection for all adults with the prospect of better health, greater freedom from fatigue, better nerve control, and a more cheerful outlook on life.

INFLUENCE ON EMPLOYMENT. Good nutrition may improve the adult's chances for employment. It is safe to say, other things being equal, that of two workers in the same office, preference for promotion to a position with more responsibility will be given to the one who is alert and vigorous throughout the day and remains calm and cheerful under trying circumstances, rather than to one who is tense, has a worried expression, a fatigue droop to his shoulders, and is easily upset by trivial details.

There is little doubt but that the nutrition of a large part of the adult population can be—should be—improved through the application of the newer knowledge of nutrition.

III. Elderly Adults

Most elderly adults want comfort and cling tenaciously to their familiar routine which they feel brings maximum contentment. Since, however, health means greater comfort and the health protective foods can do much to increase a feeling of well-being and lessen the dangers from degenerative diseases, food habits can hardly be ignored during the later years of life. To be sure, the prevention of the infirmities of old age should begin during childhood, but much may be accomplished by **starting good food habits at any age.**

Many elderly people have food habits so firmly established it is often difficult to disillusion them about their ability to eat

certain foods or to persuade them to introduce changes. If they have eaten pancakes and doughnuts for years without distress, they see no reason why these foods should disagree with them at seventy or eighty years of age.

Food Needs of the Aged

A serious study of the food needs of the elderly adult has only recently been undertaken, hence less information about his special needs is available than for children and growing boys and girls. It is known, however, that food must be adjusted to a slower digestion, decreased secretions, less active glands, and a less active life. In general, the elderly person needs:

Milk and cheese to provide calcium for the protection of bones and teeth.

Milk, cheese, eggs, meat, and fish to provide protein to prevent a wasting of muscle tissues and to maintain the strength and activity of all tissues.

Milk, cheese, eggs, meat, whole grains, vegetables, and fruit to provide minerals and vitamins to retard the progress of degenerative diseases.

A limited amount of breads, cereals, sweets, and fats to supply energy.

Elderly adults should not be urged to eat more than they want for extra food, over and above the amount needed to maintain health and weight, will put extra work on pancreas, liver, kidneys, and other organs. In some cases, digestion may be so disturbed that only the very simplest prepared foods can be tolerated.

PROTEIN-RICH FOODS. Milk, cheese, eggs, meat, and fish all supply the type of nourishment needed by the aged. They are easily digested and, with the exception of meat, are easy to eat. This is very important when teeth are poor and chewing is diffi-

cult. Every elderly person needs at least a pint of milk (two cupfuls) every day and a larger amount is desirable if for any reason meat has to be eliminated.

An elderly person who lives alone and is inclined to eat nothing except bread and tea because of too few cooking utensils should be encouraged to take three or four cupfuls of milk every day, or its equivalent in cheese. If milk is the only protein food, this amount is needed to keep protein at a level which will prevent nutritional edema and wasting of muscle tissue; to supply riboflavin which helps to keep up muscle tone and vigor, vitamin A to increase the ability to resist infections, and calcium for the protection of bones, digestion, heart action, and other internal activities. Too little calcium over a long period may leave bones so brittle they will break easily.

The stimulating quality of meat is often appreciated in later years and a small amount every day would add much to the comfort of the elderly adult who craves it and has the teeth for chewing it properly, and if the food budget will provide it without sacrificing other more essential foods. But too large an amount of protein may put a dangerous burden on kidneys and other organs which act more and more slowly as the aging process advances. Meat is not an essential like milk because its protein, niacin, thiamine, and iron can be supplied in eggs, cheese, fish, and legumes, provided legumes can be taken without distress. Since the slower digestion of the elderly person may make it difficult to digest legumes which have been cooked with salt pork or ham bone, it may be advisable to make bean or split pea soup without fat.

FRUITS AND VEGETABLES. As the absorptive power of the digestive tract decreases, food should supply a larger amount of minerals and vitamins so that heart, liver, and other organs will have all they need for good protection. Sore joints, general weakness, watering of the eyes, an all-gone feeling, diarrhea, anxiety over little things, inability to recall names and details are some of the symptoms that may indicate too little minerals and vitamins in the food eaten or poor absorption. Health and comfort

require more liberal amounts of fruits and vegetables than at an earlier age.

BREAD AND CEREALS. The elderly person who sits in an easy chair most of the day obviously requires less energy than a more active person. He also needs less because his internal activities are going at a slower pace, but every food that is selected for energy also should carry maximum minerals and vitamins. Oatmeal, whole wheat, and brown rice



are wise choices.

SWEETS. Sweets in moderation are useful because they are easily assimilated and help to give instant relief when a person is very tired. Their use is often abused, though, and such foods as sugar, preserves, sweet cakes, honey, and candy may overstimulate the pancreas. Also a slowing down of the oxidative processes makes the utilization of carbohydrates less complete than in former years and any amount taken over and above the need for energy and maintaining weight may leave waste products that will be injurious to some of the internal organs or to the joints.

Sugar in tea or coffee and desserts are the least harmful ways in which elderly people may use it and they need not be criticized for taking a piece of candy at the end of a meal if it means much pleasure to them. A craving for much sweet is likely to be caused by food that does not supply all the essential factors for well-nourished tissues. If the elderly person with this urge can afford to buy more fruit in place of the candy, the result should be more comfort because of its influence on health.

FATS. Although a person may have digested fat with ease in earlier years, the reduced flow of the digestive juices may interfere with its digestion in later life and such foods as fat meat, pork, heavy cream, rich cakes, pastries, rich dressings, and fried foods should be used cautiously. Fried potatoes, fried eggs, and doughnuts are some of the chief offenders. It is usually difficult for those who have been accustomed to eating them to believe these foods could cause distress, but if they can be persuaded to test the effect without them for a week or two, they may be glad to reduce the quantity used.

Aids to Comfort

MAKING FOODS EASY TO EAT. When teeth are poor or missing, or dentures are ill-fitting, elderly people often appreciate foods prepared so they can be eaten with ease. Some of the foods those with poor teeth will enjoy are: milk, milk soups, cottage cheese, cheese sauce on toast, rice, or cooked vegetables; poached, soft-cooked, and scrambled eggs, egg and milk combined in custards, puddings, and eggnogs; some soft raw fruits, fruit juices, tomatoes, and cooked fruits, such as applesauce; well-cooked vegetables, possibly mashed, chopped, or puréed; home-cooked cereals; fish, chopped meat, meat soups or stews; and soft desserts.

It is useless to urge an elderly person with few or poor teeth to eat raw cabbage and other raw vegetables. If unable to eat muscle meat, liver, fish, and eggs should be used freely and milk should be increased, with additional amounts of cooked green leaf vegetables.

Elderly adults who find it difficult to eat hard bread crusts, toast, and crackers often like to dip them in their tea or coffee or have them moistened with hot milk or hot water. It will be easier for them to bite off small pieces of bread with hard crusts if crusts are cut at intervals.

STIMULATING THE APPETITE. A sedentary life, lack of exercise, and an absence of stimulating interests may so depress the appetite that it will need to be pepped up with clear soup at the beginning of a hearty meal. Condiments and relishes also are useful as stimulants for elderly adults, but clear soups and relishes are not recommended when every penny of the family income must be spent for the most nourishing foods. Unless these foods are home-made, their low food value puts them in the luxury class but tea and coffee will serve the same purpose. If sipped at intervals throughout the meal they stimulate digestive juices and aid digestion.

SMALL AMOUNTS OF FOOD. Many elderly adults find it easier to take all the nourishment they need when food is eaten in four or five light meals instead of in three heartier meals. Many appreciate milk, warmed in winter, with crackers or toast about

10:00 A.M., hot tea or coffee with toast or cookies about 3:30 P.M., and warm milk upon retiring. Hot food at mealtimes, hot tea in the afternoon, and hot milk at bedtime often bring cheer to many elderly adults whose slower circulation and less active life tend to make them sensitive to cold.

AIDS TO GOOD DIGESTION. Food can do its best work in promoting health when the individual has a moderate amount of exercise, three or four cupfuls of liquid between meals each day, daily elimination, and long hours of sleep. The heartiest meal at noon, a light meal at night, and hot milk just before retiring will help to make sleep more restful. Elderly adults frequently need to be urged to drink four or five glasses of liquid each day to flush the system and rid it of waste material through the kidneys.

A SIMPLE MEAL PLAN. When an elderly adult is a member of a large family in which one person must do most of the work, it may be impossible to make all the concessions which have been suggested to make him most comfortable, but the essential foods—milk, vegetables, fruit, whole grain or enriched bread and cereals—may be provided in forms that are easy to eat without extra work. These foods, when eaten in proper amounts, will help to keep him in good condition and should add to his comfort and contentment through reducing his weariness and minor aches and pains.

Food Problems of Living Alone

RESTRICTED FOOD SELECTION. When an elderly person lives alone, lack of storage space, ice-box facilities, and cooking equipment often limit food selection and food preparation. It is sometimes more difficult to buy in quantities that can be used to good advantage before food spoils. Much of a head of cabbage, for instance, may wither before one person can eat the whole of it unless, by chance, good refrigeration is available and the cabbage can be kept in waxed paper in a tightly covered container.

Under such conditions, it is not surprising to find an elderly

person living chiefly on bread, tea, and possibly fruit and an occasional egg, but with few vegetables. It is often difficult to bring about a change in habits if they are of long standing, and radical changes are often impossible, or inadvisable. If a person who has been limiting himself to these foods will add at least a pint of milk (2 cupfuls), use at least half whole grain or enriched bread, and include some fruit or tomato every day, meals will be fairly satisfactory. Greater health protection will be afforded with a more varied food selection including vegetables, meat or fish, and more fruit.

DESIRABLE FOODS. These foods are suggested as desirable for a person who lives alone and has very little money to spend:

A Low-Cost Weekly Food Order for One Person
(Double these quantities for two people)

<i>Milk</i>	3½ to 7 qts.; fresh, evaporated, or dried
<i>Cheese</i>	¼ lb. American or ½ lb. cottage
<i>Eggs</i>	½ dozen or more
<i>Vegetables</i>	5 to 8 lbs., including potatoes, green leaf, and others; fresh or canned
<i>Fruit and Tomatoes</i>	4 lbs. or more; fresh or canned
<i>Bread and Cereals</i>	3 to 4 lbs., whole grain or enriched
<i>Meat-Fish</i>	1½ lbs.; liver, kidneys, chopped meat, lamb shoulder chops, stewing meat, and inexpensive fish in season
<i>Fats</i>	½ lb.; butter, margarine, peanut butter
<i>Sweets</i>	½ lb.; sugar, molasses, other sweetening
<i>Tea</i>	
<i>Coffee</i>	
<i>Seasoning</i>	

COOKING FACILITIES. A frequent handicap to satisfactory meals for the person living alone is lack of cooking equipment. With only a one burner gas plate, or the top of a wood-burning stove with no oven, the number and kinds of dishes that may be prepared are limited. With one burner, cereal and coffee or toast

and tea, and fruit, either raw or previously cooked, can be managed for breakfast. At noon, there may be a protein-rich food with bread, tea or coffee, and a dessert that can be served cold. The evening meal may consist of a vegetable, bread, milk, and a cold dessert if a dessert seems necessary. Some of the possibilities for preparing food on a one-burner gas plate are:

<i>Milk</i>	Milk toast, milk soup, white sauce for creamed vegetables and fish, cornstarch pudding, and cocoa
<i>Eggs</i>	Soft or hard-cooked, poached, or scrambled; combined with milk in custards
<i>Cereals and Rice</i>	As a breakfast dish; in cereal puddings; rice as in Spanish rice
<i>Fruits</i>	Applesauce, tomatoes, cooked prunes, and other cooked fruit
<i>Vegetables</i>	Plain boiled, creamed, in milk soups, or served with cheese sauce
<i>Meat and Fish</i>	Pan-broiled, in stews, braised in a frying pan over low heat with or without tomato; fish creamed or in chowder

PURCHASING AND KEEPING FOOD. *Milk.* Since it is difficult to keep fresh milk without an ice box, especially in warm weather, either dried or evaporated milk will be more satisfactory. It is not always possible to buy dried milk but evaporated milk is almost always obtainable and is most convenient when it can be purchased in small cans, each can the equivalent of about one pint of milk. This will keep for some time unopened but once the can is opened, the milk must be cared for like fresh milk.

A quart of fresh milk every other day would be less expensive than a pint daily, but if there is danger of spoiling before milk can be used, it may be more economical to pay the extra pennies for the pint daily. A good solution for fresh milk in hot weather is to buy a pint just before breakfast or lunch, use part of it at the meal nearest which it is purchased, and cook the rest of it in some way, such as a white sauce, to be used at the following meal. Custards spoil so easily that they are not to be encouraged unless they are to be used within an hour or can be kept in a cold place.

Vegetables. Vegetables present difficulties, but a person need not hesitate to buy as small a quantity as one-half pound which will provide two servings of most vegetables. Except in warm weather, the second portion can be kept for a day without refrigeration.

Small cans of chopped vegetables prepared commercially for young children may be the solution to the vegetable problem for some elderly adults who live alone. They are expensive, however, and the food budget needs reviewing to determine whether or not other essential foods will have to be sacrificed to provide them.

Creamed vegetables may be a convenient way in which to use part of the milk and can be managed on one burner if the cream sauce is made before the vegetable is cooked and then reheated after the vegetable has been added. The reheating takes only a few minutes. Cheese sauce poured over mashed potatoes, cooked cabbage, or spinach makes a nourishing supper dish.

Fruits. Fruits and tomatoes are more easily disposed of, especially those that can be eaten without cooking, such as oranges and bananas. If apples are not to be eaten raw, their preparation should not interfere with the cooking of a meal because they need not be served warm.

Meat. Many adults who live alone say they feel embarrassed to ask for a small piece of meat and often buy more than they can afford and more than they need. Since the butcher is quite accustomed to selling small quantities to women with generous incomes, the person with little to spend should not hesitate to ask for as small an amount as one quarter of a pound of chopped meat or one shoulder chop if no more is needed.

Butter. Butter and other fats must be purchased in small amounts, even though the cost is increased thereby, for fat, especially butter, does not keep well without ice. A person living alone would be unable to use a large amount before it would spoil. Fats should be kept in a dark place, or in a tightly covered dish, to prevent spoiling.

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CHAPTER V

THE FAMILY MEALS

One meal planned to meet the needs of the whole family saves time for the housewife and helps to create a wholesome atmosphere for those who need special diets.

Planning meals for several days at a time makes it easy to include each essential food in proper amounts and simplifies marketing and food preparation. It may help to reduce the amount spent for food.

Kitchen equipment and utensils, marketing facilities, and individual needs of various members of the family must be considered in planning meals.

Each meal should be planned in relation to the other two meals of the day so that all essential foods will be included.

I. Planning Meals

ARE WE WELL FED? This is a booklet published by the Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture, which tells the story of what families eat. According to their own account, over half of the families in the country need to be convinced that they would be less in danger of deficiency and degenerative diseases if they would revise or expand their meal plans to include:

Enough milk for every member of the family.

Some citrus fruit or tomato every day for children and at least every other day for adults.

Potatoes and one or more other vegetables every day, including a green or yellow vegetable, and often a raw vegetable.

An egg every day if possible, at least four or five times a week, and meat, fish, legumes, or cheese once daily.

Bread and cereals, one or both, at every meal; at least half whole grain or enriched.

A moderate amount of fat and only a small amount of sweet.

FOODS ARE SPECIALISTS. Each of these foods has special assignments in the day's building and rebuilding processes, in promoting health and vitality, and in providing energy for work and recreation. If any one of them is scarce or missing in local markets, or must be omitted for any reason, some other food or combination of foods should be selected to take its place, with possible exceptions in certain special diet conditions.

Table 10, giving the chief contributions of each food, will help in deciding which foods may be substituted, one for the other. If, for instance, a person is unable to eat meat, its chief contributions, protein, iron, and niacin, may be provided through a combination of eggs, legumes, green vegetables, and whole grain products. If the limited variety of dark green leaf vegetables in a small community becomes monotonous, a more liberal use of legumes, yellow vegetables, eggs, milk, prunes, and raw cabbage will help to prevent the deficiencies which might otherwise result if dark green leaf vegetables were not used as often as the Food Guide recommends.

Planning Meals in Advance

ONE MEAL FOR EVERYONE. Every family must use the same basic foods, but each family has its own meal planning problems which vary with the number that will sit down at the table and their physical condition, ages, occupations, and appetites. Any housewife can simplify her own problem if she will take the time to arrange these foods in meals that can be adapted to every member of her family. In this way she saves the extra work of

TABLE 10
CHIEF CONTRIBUTIONS OF EACH FOOD GROUP*

	Milk	Vegetables			Citrus Fruit	Legumes	Eggs	Meat—Fish	Whole Grain or Enriched Bread and Cereals	Fats—Sweets
		Potatoes	Green	Yellow						
Protein	x					x	x	x	x	
Calcium	x									
Iron		x	x			x	x	(meat, oysters)	x	
Vitamin A	x	x (sweet)	x	x			x	x (liver)		x (butter, forti- fied margarine)
Thiamine						x		(liver, pork, oysters)	x	
Riboflavin	x					x (soybeans)		(liver, oysters)		
Niacin	x		x			x		x	x	
Ascorbic acid		x†	x (raw)		x					
Calories‡		x							x	x

* The value of a food for any given factor will depend on the quantity of the food which is eaten. The value of the contributions of each food as given in this table is based on the quantities recommended for daily use in the Food Guide, Chapter II.

† When cooked in their jackets and eaten without reheating, as in warmed over potatoes.

‡ Most foods are good sources of calories if eaten in liberal amounts. Only those considered as the most concentrated sources are checked in this table.

preparing a special cereal for the baby, a green vegetable for the preschool child, or possibly a whole meal for a convalescent.

It is hardly possible to plan such meals while doing the shopping, though. The housewife needs to sit down with paper and



pencil, a list of foods that should be included in the meals for the day, special needs of any of the family, and any food scarcities of the moment, in mind, and make her plans thoughtfully. Even so, when the housewife reaches the market she must be able to

change her meal plans satisfactorily if such foods as meats and fats are obtainable in smaller quantities than she had anticipated or are off the market completely. The idea of careful planning should not discourage a woman because it is not as difficult as it may sound. Proper meal planning soon becomes a habit and will be done almost automatically.

PLAN FOR THREE MEALS AT ONCE. It is easier to include all the foods called for in the Food Guide when the three meals are planned at the same time. The whole day's plans can then be reviewed and if, for instance, the full amount of milk has not been included, it can be increased by adding a cream sauce to a vegetable, using a milk soup for lunch or supper, or substituting a rice pudding for the apple dumpling that had been planned for dinner.

PLAN MEALS FOR SEVERAL DAYS AT A TIME. If meals are planned for a week at a time, or at least for three or four days, buying can be done to better advantage, saving time and possibly money. For example, cabbage slaw one day and cooked cabbage with cheese sauce for supper the following day will require one large head of cabbage instead of smaller amounts of two separate vegetables, perhaps saving only a few cents, but sometimes it is such small savings as these that make it possible for a family to have all the food it needs.

Planning ahead may help to reduce the amount of money spent for food in another way. Having planned her meals for a week, the housewife can estimate their probable cost, compare

this with the amount she can afford to spend and, if necessary, rearrange her plans on a more economical level without reducing the nourishing qualities of the meals. A cheaper form of milk, less expensive vegetables, a more liberal use of legumes and cottage cheese and less meat are some of the ways of reducing cost. Other suggestions are given in Chapter X. This review of cost also should help to prevent yielding to the temptation to spend so much on food the first four or five days of the week that the family will have to live on bread, potatoes, and tea for a day or two before the next pay check is due.

A Meal Pattern

No iron-clad rule says cereal must be served for breakfast and meat for dinner. No one meal pattern must be followed but "trial and error" have helped to develop the following pattern which the majority of families find useful and satisfactory. If, however, a family has its own pattern that includes all essential foods in proper amounts, it need not be asked to change for the sake of conforming to suggestions given here.

Breakfast

Fruit

Whole grain cereal, with or without whole grain or enriched bread
or Whole grain or enriched bread in place of cereal



Milk, on cereal and to drink

Optional:

Egg, bacon, potatoes; tea or coffee for adults

Lunch or Supper

One or two of these:

A hearty soup

A salad



Sandwiches

An escalloped dish

Creamed vegetable or fish

Vegetable or fruit, if not included in one of the dishes selected from those just mentioned, or in addition to it

Whole grain or enriched bread

Milk, especially for children; may be included in one of the dishes selected, as soup or creamed vegetable

Optional:

Dessert; tea or coffee for adults

Dinner

One of these:

Meat or fish

Legumes in some form

Eggs or a cheese dish



Potatoes and one or more other vegetables, including a green or yellow vegetable, unless used at lunch or supper; raw vegetable often

Milk, at least for children; part may be used in cooked foods

Whole grain or enriched bread

Optional:

Dessert; tea or coffee for adults

ADJUSTMENTS. This pattern is easily adjusted to meet individual likes and dislikes. For example, most people enjoy the stimulating effect of fresh fruit for breakfast, but it will do just as much good nutritionally if taken in a salad at noon or used as dessert at night.

II. A Hearty Breakfast

TIME FOR EATING. The practice of dashing through the morning routine, including breakfast, endangers health in various ways. It is quite likely to reduce the amount eaten, for the person who eats hurriedly usually thinks he hasn't time to take all the food he needs and often omits milk or fruit. A feeling of haste has a tendency to reduce the appetite and this also may result in eating too little. It may retard digestion. To avoid these threats to good nutrition, the entire family should get up in time to spend at least ten or fifteen minutes at the breakfast table, eat slowly, and relax a few minutes after eating.

A GOOD BREAKFAST. A good breakfast should be nourishing, high enough in energy to replace the amount that has been used during the long stretch between the evening meal and breakfast, and to prevent fatigue during the morning ahead. A simple breakfast, such as fruit, cereal, and milk or fruit, bread, and milk, will serve all of these needs. It is easily prepared and is as inexpensive as a good breakfast can well be.

Each person can eat as much or as little of such a breakfast as he needs. The adolescent boy will, no doubt, require two big dishes of cereal and possibly several slices of bread while the office worker who will be sitting most of the morning may need only bread or cereal, not both. A small serving of a well-cooked whole grain cereal, served in an attractive dish, may even encourage the adolescent girl who has a dainty appetite to ask for a second helping whereas a larger serving might discourage her from eating any at all.

Energy Sources for Breakfast

CEREALS. Cereals are the best breakfast food because they are a source of energy that will supply pep and vigor for the morning. If whole grain, they supply growing material for children and health protection for everyone. Whole grains also stimulate peristalsis and help to prevent constipation. A whole grain cereal for breakfast is good for everyone but especially necessary for children. Rolled oats, oatmeal, and dark farina provide most nourishment for the money spent for them.

Choosing Cereals. Mothers who speak little English often hesitate about using cereal, not because they are uncooperative but because they are uncertain about several points. They may be confused because they do not understand that oatmeal and cereal or farina and cereal mean the same thing or that oatmeal and farina may be used interchangeably. Even the uncertainty about the appearance of the box, the right-sized box to buy, and the amount to measure out for the family breakfast are points that oftentimes need to be explained before they dare venture. While these may seem like minor details, they may interfere with the child's health if they prevent him from having a good breakfast.

OTHER SOURCES OF ENERGY. *Bread.* Oftentimes a breakfast of whole grain or enriched bread with milk seems more appropriate for a hot summer morning than a hot cereal and it will be as nourishing if eaten in large enough amounts. Bread is sometimes more expensive than home-cooked cereal and this may be a reason why it is undesirable as a substitute for cereal in low income families.

Rolls. It is easy to understand why mothers who have large families and live in small, poorly equipped apartments often send one of the children to a nearby bakery to buy rolls for breakfast, but unless these rolls are made of whole grain or enriched flour, they will not supply much material for children to grow on or for maintaining adults in good physical condition.

Rolls also are more expensive than a home cooked cereal and it is doubtful whether most low-income families could afford to

buy all the rolls needed to furnish adequate energy for everyone. Even though rolls are a penny each, three rolls per person would cost three cents per person whereas cereal would cost only about half as much.

Ready-to-eat Cereals. Children generally like puffed, crisp, and flaked ready-to-eat cereals but these cereals are bulky and children seldom eat enough of them to get all the energy they need. For this reason, it would not be surprising to find the children who eat them every morning do not gain as rapidly as they should. While these cereals are appropriate for special treats, they should not be used regularly for children.



Sugar on Cereal. Anyone who has tried to influence children's eating habits knows that boys and girls who have formed the habit of eating sugar on cereal find it very difficult to eat cereal without it. While a half teaspoonful of sugar, or even a level teaspoonful, may not be harmful, the real danger lies in gradually increasing this amount to a tablespoonful or more. Since sugar may cause digestive disturbances and spoil the appetite for other foods when used in such large amounts, every effort should be made to correct the habit.

One method which may be tried is to reduce the sugar without mentioning it to the child, but so gradually that he will not notice the difference. Possibly whole grain or enriched cereal may increase the child's appetite and make him hungry enough to eat cereal without sugar. A variety in the kind of cereal served or dried fruit cooked with the cereal may help a child to forget the sugar. In any event, teaching a child to give up sugar, once the habit has been formed, is a long tedious process and both mother and child are fortunate if the habit has never been established.

Other Foods for Breakfast

Milk. Children are so dependent on the excellent quality of protein, high calcium, vitamin A, riboflavin, and other factors

in milk for healthy growth, strong muscles, steady nerves, and sound teeth that the full amount required must be taken every day, not just occasionally. Adults also need milk regularly to protect the heart action, aid such internal activities as digestion and nerve control, as well as to preserve the vigor of youth. Unless some of the milk is taken for breakfast, it will be difficult to include all that is needed in the other meals, especially for those who should have three or four cupfuls each day.

When a housewife with a large family contemplates the number of bottles of milk needed to supply each member with the full amount the Food Guide recommends, her sense of values



is sometimes so upset that she decides she cannot afford to buy so much milk, whereas she might not be so overpowered if some of the milk were purchased in its more concentrated forms, evaporated and dried. These concentrated forms of milk are often cheaper than fresh milk and

when economy is necessary, a housewife may be able to purchase all the milk her family needs by using one or both of them in cooking. The relative economy of various forms of milk is discussed in Chapter X.

COCOA FOR CHILDREN. Many mothers who know they should not give tea and coffee to children think cocoa is a safe compromise as a hot beverage for breakfast. Whether or not this is a safe practice depends on the nervous stability of the individual child and the way in which cocoa is made. Cocoa made with all milk is a nourishing as well as a pleasant drink, but its chief food value is furnished by the milk, not by the cocoa. Milk alone would be practically as nourishing and it is no hardship for children who are accustomed to it to drink plain hot milk.

The use of cocoa may cause real harm when a mother wants to stretch a bottle of milk to do the work of two and makes cocoa with half water. In such instances, each child receives only half as much growing material as he should be receiving from a full cup of milk. Another objection to cocoa is its stimulating quality which makes it quite unsuitable for easily excitable children.

Cocoa should be given only to children whose nerves are not easily disturbed, and always it should be made with all milk, only enough cocoa to give a mild flavor, and not over one teaspoonful of sugar to each cup of cocoa.

FRESH FRUIT. Fruit almost always receives a warm welcome at breakfast for it stimulates the morning appetite and makes the rest of the meal seem more interesting. It is also a laxative which many need with their morning meal.

Oranges, tangerines, and grapefruit are general favorites—and rightly so because of their high ascorbic acid. Fruit should be served with as little cutting as possible to supply maximum amounts of this health protective factor. Uncut orange and grapefruit pulp contains more ascorbic acid than sliced fruit and sliced fruit contains more than the juice. If an adolescent boy or other member of the family refuses to take the time to eat fruit served in this way—and cannot be persuaded to change his ideas—it is better to let him have fruit juice than no fruit, or he may be persuaded to take more juice, or even the whole fruit, at some other time during the day.

Melons, papayas, and strawberries may be used in place of citrus fruit for they are equally valuable for protecting gums and teeth, strengthening small blood vessels and all connective tissues, preventing sore joints, and giving a general feeling of well being. In sections of the country where these fruits are plentiful, they may be more economical than citrus fruit. Tomatoes have only about one third as much ascorbic acid as the other fruits mentioned, so three times as much tomato as citrus fruit must be used to produce the same results.

POTATOES FOR BREAKFAST. When families who raise their own potatoes prefer them for breakfast, there is no reason why they should be asked to go to the expense of buying breakfast cereal. As shown in Figure 20, potatoes possess all the outstanding qualities of whole grain cereals and, when cooked in their jackets and served without warming over, they also supply a fair amount of ascorbic acid. One average-sized potato is a good substitute for three-fourths cupful of a cooked whole grain cereal. While

potatoes are more expensive than cereals when purchased in city markets. Home-grown potatoes are economical. They are an excellent food at any meal, even at breakfast.

SPAGHETTI FOR BREAKFAST. Sometimes families have spaghetti for breakfast which has been left over from a previous meal but, as Figure 20 shows, it is not a substitute for a whole grain cereal. Families of Italian descent have such a strong feeling for their national dish, however, that it is sometimes wiser

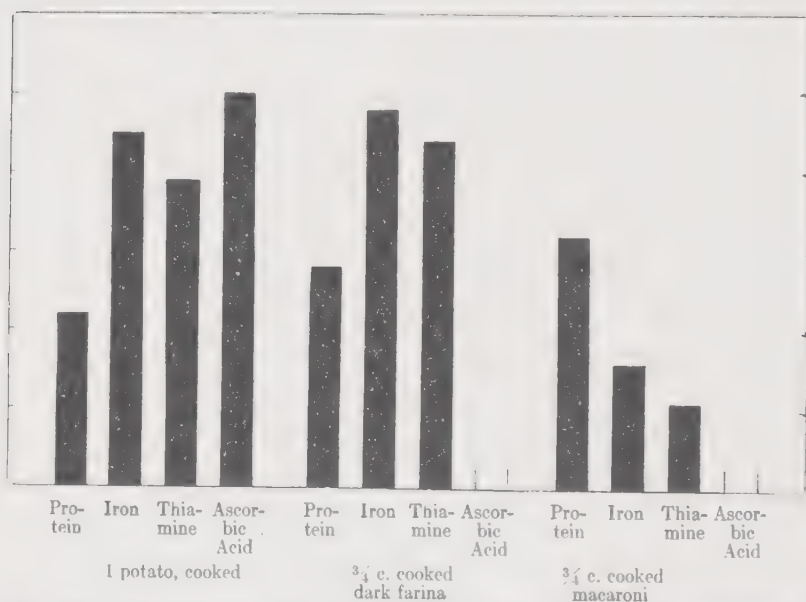


Fig. 20.—Comparative value of the outstanding qualities of potatoes, dark farina, and macaroni. (Calories are practically the same in all three foods.) The amount of ascorbic acid in potatoes will depend on the method of cooking.

to accept the family's choice of it as a breakfast food for older children and adults, even though it is not as nourishing as a whole grain cereal. Too much objecting may prevent their co-operation in other health practices. Since the missing food factors in spaghetti may be supplied by green leaf vegetables used generously at other meals, the deficiency in total food value for the day may not be as serious as the first impression would lead one to believe.

BACON AND EGGS. Other foods, such as bacon, eggs, fish, and liver, are often added to the breakfast and are desirable when the food budget will permit their use without causing sacrifices in other essential foods but they should not replace milk or reduce the energy value of the meal below requirement.

III. The Dinner

Points To Be Considered

THE HOUR. Dinner may be at noon or at night. The hour is not important. The chief concern is to have it when the largest number in the family can sit down together, take time to eat slowly, share interesting events, and enjoy each other. Interest and enjoyment need special emphasis because they help in promoting good nutrition through stimulating the digestive juices.

FACILITIES. In discussing meal plans with a family, it will be useless to suggest a casserole dish if the family has no "active" oven, or to recommend a dinner in which meat and vegetables are to be cooked separately if the equipment includes only one large kettle. While a raw vegetable may be possible occasionally, it would not be feasible all of the time, nor for all members of the family even every other day. Well planned meals that are adequate for health protection require suitable equipment. A list of equipment necessary for the preparation of suitable meals is given on page 276 in Chapter X.

AVAILABLE FOODS. A familiarity with current market conditions will help to prevent the recommendation of pork when it is scarce and high in price while veal or lamb may be plentiful and offered at bargain prices. If there are baked beans or other food in the ice box which have been left over from a previous meal, they should by all means be included in any meal plans that are being made—to save the food, to save time, to save money. Otherwise the shy housewife will be confused, knowing she has something that should be used, yet which is not included in plans for the next day or so.

Considerations such as these help to make a plan that is workable, to avoid confusion in the mind of the housewife, and to gain cooperation in the family.

ATTRACTIVENESS. Anyone who is interested in health naturally emphasizes the need for including milk, fruit, vegetables, and other foods necessary for health protection, but the majority of families want something that looks attractive. The nurse and family need to combine ideas and plan nourishing meals that are interesting to look at, because appearance is very important as a health measure through the reactions that flash from eye to stomach and stimulate the digestive juices.

An escalloped dish with brown crumbs may appeal to the adolescent girl who would not touch a plain boiled vegetable. Grated raw carrot, chopped parsley or other green leaf, or chopped red pepper will make an otherwise colorless soup seem like a party to young children and often tempt adults who think they are not hungry. Salads, even though the foundation is inexpensive cabbage or chopped spinach leaves with a few slices of unpeeled red apple or radishes, will dress up a meal that would be drab and uninteresting without some color. These little touches which add to the attractiveness of a meal will be very much worth while if they help to increase the amount of food eaten.

Planning Dinners

A well-planned dinner will contain a hearty dish, one or more vegetables, bread in some form, milk at least for the children, and possibly a dessert, though the dessert is not always necessary.

THE HEARTY DISH. Meat, fish, legumes, eggs, and cheese are the possible choices for the main protein dish, but while they resemble each other in their protein content, they vary in other respects, as shown in Table 11. When selecting a food for the main dish, these other factors need to be considered, especially when the amount of money that may be spent for food is limited. A careful study of the foods in the table shows that milk and liver rank first because they supply the largest number of

factors—six each—yet legumes are so inexpensive they deserve an extra mark for this advantage which would put them in a class with liver and milk.

Thus, amplifying Table 11:

Liver is very high in vitamin A; cheese, eggs, kidneys, and milk are good sources.

Pork, kidneys, and soybeans are very high in thiamine; other legumes and milk are good sources.

Liver is exceptionally high in niacin; meat and fish are excellent sources; legumes are fair sources.

TABLE 11
A COMPARISON OF THE VARIOUS FACTORS*
CONTRIBUTED BY PROTEIN-RICH FOODS

	<i>Protein</i>	<i>Calcium</i>	<i>Iron</i>	<i>Vitamin A</i>	<i>Thia- mine</i>	<i>Ribo- flavin</i>	<i>Niacin</i>
Cheese	x	x		x			
Eggs	x		x	x			
Fish, non-oily	x						x
Legumes							
navy beans	x		x		x		x
soybeans	x		x		x	x	x
Liver	x		x	x	x	x	x
Kidneys	x		x	x	x	x	?
Meat, muscle	x		x		x†		x
Milk	x	x		x	x	x	x

* The evaluation of foods in Table 11 is based on the quantity of a particular factor which will be obtained when foods are eaten in amounts recommended in the Food Guide.

† Especially pork and ham.

Milk and cheese are the only good sources of calcium.

Kidneys, liver, and milk are very high in riboflavin; soybeans are a good source.

VARIETY. Since all of the good qualities are not found in any one food, it is well to have a variety in the main dinner dish throughout the week. A satisfactory selection for planning seven hearty meals in low-income families is as follows:

Meat	three or four days
Fish	one or two days
Legumes	one or two days
An egg or cheese dish	on other days

Selecting the Main Dish

LIVER AND VARIETY MEATS. In making meat selections, liver is the best investment for it contains a rare combination of food values as Table 11 shows. It is good for everyone from the baby to his grandmother and may well be served at least once or twice a week. Beef, calf, lamb, and pork liver are about equally nourishing and any one of them may be eaten by any member of the family—baked, sautéed, in soup, or liver loaf. In suggesting pork liver, it is well to keep in mind that it needs to be well cooked to prevent any possibility of trichinosis.

During the last few years, many families have learned to like kidneys and heart, close seconds to liver in food value. Tripe and other variety meats are also good foods and low in cost. While all of these may be encouraged for older children and adults, only the liver is recommended for the baby.

INEXPENSIVE MUSCLE MEATS. When a woman goes shopping just before dinner, she frequently selects chops or similar cuts because they can be prepared quickly. Since these are expensive, however, they take such a large share of a low-income food budget that oftentimes too little money is left to buy as much milk and other essential foods as the health of the family requires.

Less expensive, but equally nourishing, cuts of meat, such as chuck, breast of veal, shoulder of lamb, chopped meat, and stew meat from the neck and shank will leave more money to spend for other foods. With the exception of chopped meat, they all need long, slow cooking and many women who work and reach home just before the dinner hour would not have time to cook them for the evening meal. Even though they are not to be served at the evening meal of the day on which they are purchased, they may be cooked, or partially cooked, that day and the final cooking done in a comparatively short time the following night. This practice is, of course, possible only where an ice box or other means of keeping food from spoiling is available.

Pot roasts, braised meat, meat loaf, meat pie, soup, and stew are some of the ways in which these inexpensive meats may be served. Soups and stews are popular but while they save time

and work, they have disadvantages. They usually contain meat with considerable fat and vegetables cooked with fat are unsuitable for children. Vegetables cooked in this way are often overcooked with unnecessary destruction of vitamins. The quantity of vegetables per person is usually less than a serving of vegetables cooked by themselves. Soups, except those made with milk, are likely to be low in calories, as indicated in Figure 21.

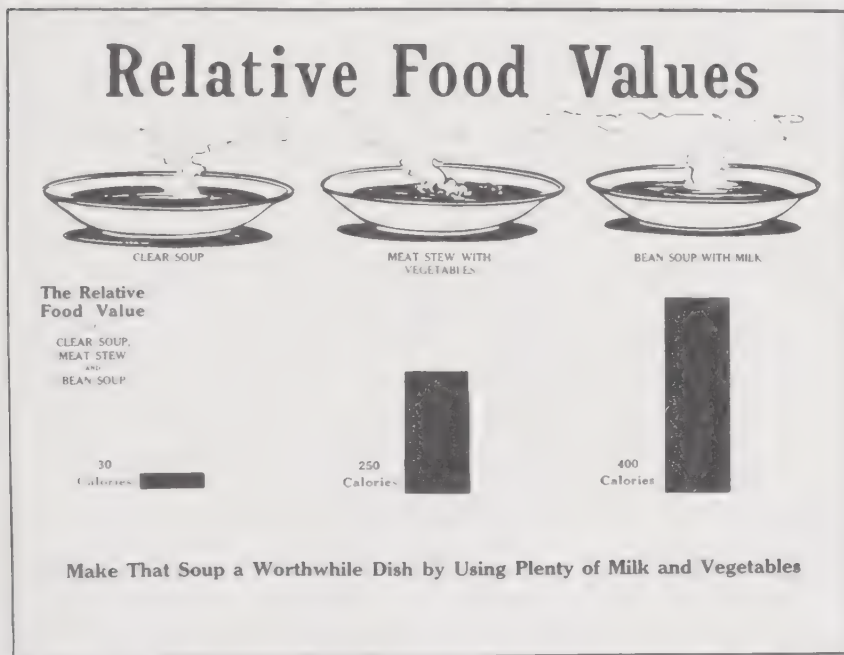


Fig. 21.—A nourishing soup makes a good lunch or supper dish. It needs milk and vegetables to make it most worth while. (Courtesy of Community Service Society, New York City.)

Because of all of these disadvantages, a family should have adequate equipment so that soups and stews need not be served oftener than once or twice a week. When served, at least one vegetable cooked in a separate kettle is a safety measure. If the family has no separate kettle, then the cooked vegetable may be served for lunch or supper.

VEGETABLES TO GO WITH MEAT. Since meat is a better source of iron than fish and cheese, the green vegetables with their

rich supply of iron might be left for the days when these foods are used for the main dish and one may select vegetables low in iron, such as carrots, squash, onions, beets, and turnips, to go with meat. These need not be used to the exclusion of green vegetables, or any other vegetable that may be preferred, for any vegetable goes well with meat.

WHEN FISH IS PLENTIFUL. On the coast or near lakes and ponds where fresh fish may be obtained at a reasonable price, in-

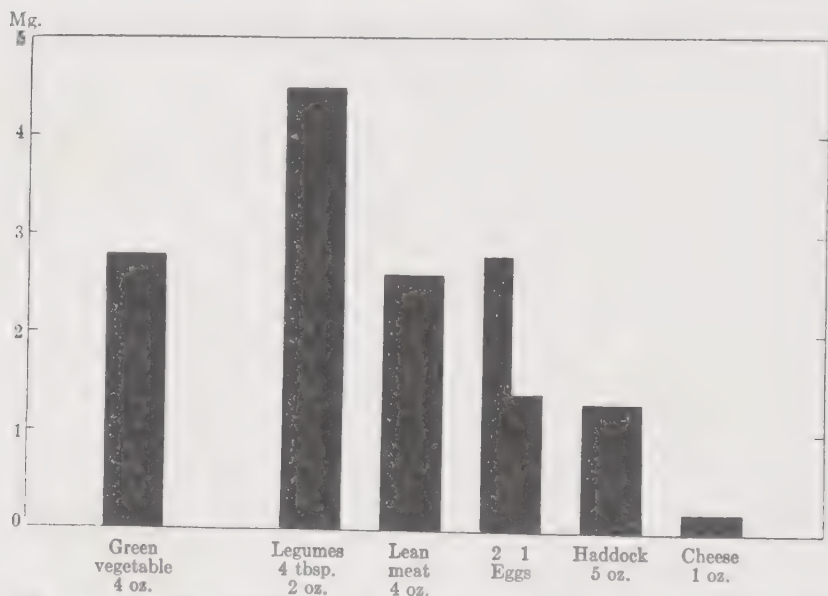


Fig. 22.—Green vegetables as a supplement to fish and cheese. Green vegetables are desirable with any protein-rich dish but they are especially desirable with fish and cheese.

expensive varieties served once or twice a week, or oftener, help to stretch a small food budget. Baked fish and fish chowder made with milk, potatoes, and onions are popular ways of preparing it. Other ways include creamed, escalloped, and broiled fish and fish soufflé. With the exception of broiled fish, left-over as well as fresh fish may be used in making all of these dishes. Salt cod-fish may be boiled and served with a milk sauce, creamed, or made into fish balls. Canned salmon is a convenient fish to use in patties, salmon loaf, a creamed dish, and in salads.

Since fish, with the exception of oysters and clams, is low in iron when compared with meat and legumes, as shown in Figure 22, it is best served with a green vegetable, such as chard, kale, or a green salad which also gives a bit of color and adds an interesting touch.

Meals without Meat or Fish

SATISFACTION WITHOUT MEAT. Many who have been accustomed to a generous portion of meat each day miss its stimulating qualities when they do not have it, but when most nourishment for least money must be obtained, it may be necessary to serve meatless meals with legumes, eggs, or cheese and one or two vegetables two or three times a week. Such meals can be made to furnish as much nourishment as a man doing hard physical work requires and the "satisfaction" can be supplied by a tasty home-made relish, such as cabbage slaw, pickled beets, tomatoes, or a raw vegetable salad, while a sweet dessert at the end of a meal will help to give a feeling of completeness.

THE INEXPENSIVE LEGUME. Since legumes are very nourishing and inexpensive as well, the less money a housewife has to spend, the more often she should depend on dried beans, peas, and lentils to form the basis of such dishes as soups, stews, rice and beans, a bean loaf, and bean patties. If she will plan to use a tasty vegetable, such as tomatoes, pickled beets, or a vegetable salad, with her legumes and make soups attractive with chopped green leaves or grated raw carrot over the surface, she may find the family looking forward to the days when legumes are served.

Since all kinds of legumes have practically the same food value, there is no need to urge any family to use any special variety. Different racial and national groups have strong likes and dislikes, even prejudices. Some of the favorites of the Puerto Ricans, for instance, are navy, black, pinto, and Lima beans and pigeon peas while Italians are partial to fava and navy beans and chick peas.

Legumes need to be thoroughly and properly cooked to pre-

vent digestive disturbances. Frequently a person who is sure baked beans do not agree with him finds they give no trouble when cooked without fat.

OTHER POSSIBILITIES. Creamed eggs, creamed eggs and potatoes, potato and egg omelet, and cheese omelet are some of the forms in which eggs may be used as the basis of a hearty dinner, but eggs are not always inexpensive.

Cheese. Cheese is another good food for a hearty dinner dish. If whole milk cheese is used, it may replace part of the milk needed by an adult as well as his meat. Cottage cheese, on the other hand, is not dependable as a source of calcium and should not be counted as part of the day's milk requirement. Any vegetable will go well with cheese, but green leaf vegetables are suggested to supply iron, a factor low in cheese.

Cheese frequently causes distress if cooked until it is tough and stringy, or when browned on top of such dishes as escalloped potatoes, macaroni and cheese, or an open cheese sandwich. Yet, when it is melted in milk or a milk sauce below the boiling point, it can be given to young children three and four years of age.

Cheese sauce poured over such hot foods as mashed potatoes, rice, cooked cabbage, spinach, and broccoli makes a good foundation for a hearty meal. Supplemented with two hearty vegetables, such as eggplant and kale, it should satisfy even hard working men.

Vegetables

While all vegetables contain minerals and vitamins that help to increase vigor and endurance, Table 12 gives the specific values of certain vegetables that should be kept in mind when planning meals.

VEGETABLES IN RELATION TO THE MAIN DISH. The Food Guide calls for potatoes and at least one other vegetable daily. Since different vegetables are useful in different ways, a variety from day to day will help to supply all the nutrition factors which vegetables contain in adequate amounts. Each day's dinner vegetables should be selected in relation to the main dish.

Some vegetables give character to a meal as well as nourish

ment, such as a tomato salad served with legumes. Some supplement the main dish to make up for deficiencies. For example, if iron is low, as in fish or cheese, kale, chard, or other dark green leaf vegetable will supply the missing factor. If calories need increasing, potatoes will supplement the meal to good advantage.

POTATOES. Potatoes furnish far more than calories, however. A person who eats two large sweetpotatoes in any one day will obtain half the vitamin A he needs that day and three or four white potatoes will supply about one fourth of the daily require-

TABLE 12
CHIEF CONTRIBUTIONS OF VARIOUS TYPES OF VEGETABLES*

	<i>Calories</i>	<i>Iron</i>	<i>Vitamin A</i>	<i>Thiamine</i>	<i>Vitamin C</i>
Green leaf, dark		x	x		x
Potatoes					
Sweet	x	x	x	x	x†
White	x	x		x	x†
Tomatoes					x
Yellow			x		
Others	Generally useful but have no outstanding values				

* The evaluation of the food value of various types of vegetables is based on the quantity of a particular factor which will be obtained when foods are eaten in amounts recommended in the Food Guide, Chapter II.

† Potatoes are a good source of vitamin C (ascorbic acid) when cooked with their jackets on and served freshly cooked; they may lose much of their vitamin C when reheated to serve as warmed-over potatoes.

ment of iron and about half as much vitamin C as an adult needs each day—that is, if potatoes are properly cooked. Most nourishment is retained when they are baked or steamed in their jackets.

Potatoes are so nourishing and such an economical vegetable, even when purchased in city markets, that a thrifty housewife who is in earnest about getting a good return for her money will use them at least once, preferably twice daily.

Dinners without Potatoes. Potatoes are hardly necessary with such dishes as spaghetti or rice and cheese or baked beans, but spaghetti and rice are by no means substitutes for potatoes. As Figure 23 shows, they have less of the protective qualities than potatoes and should not be used in place of them more than once or twice a week. When used, they need to be supplemented with iron-rich foods, such as dark green leaf vegetables, prunes, or eggs.

GREEN VEGETABLES. Green vegetables fit well in any meal plan but are especially appropriate with fish and cheese as well as with rice and spaghetti. Careful cooking is necessary to preserve maximum food value, for at least 50 per cent of their good qualities may be lost or destroyed through carelessness in preparation.

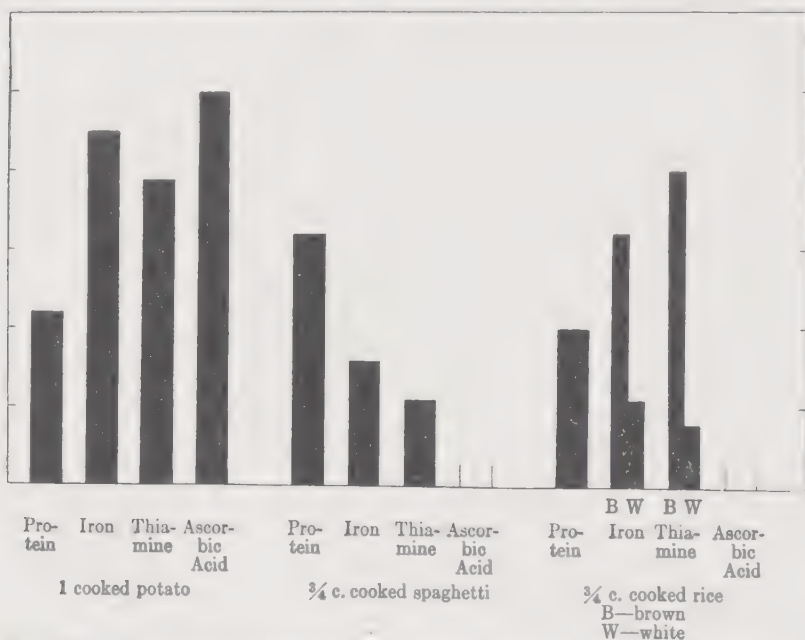


Fig. 23.—Comparative value of the outstanding qualities of potatoes, spaghetti, and rice. (Calories are practically the same in the three foods.) The amount of ascorbic acid in potatoes will depend on the method of cooking.

Leaves from Root Vegetables. An economy often overlooked is the use of green leaves from such vegetables as beets and kohlrabi. Table 13 shows what a large amount of nourishment a housewife loses when she buys a bunch of beets with the leaves on but throws the leaves away. According to these figures, she discards the most valuable part of her purchase. Instead of buying spinach to go with a fish dinner and eggplant with breast of veal, it would be much more economical to buy beets, turnips, or kohlrabi with crisp, fresh leaves, use the leaves with the fish



and the root portion of the vegetable with the meat. This provides two vegetables for nearly the price of one.

When Green Vegetables Are Scarce. Few families want to eat spinach three or four times a week during the winter, yet in some communities it may be the only green leaf vegetable in the markets. In such situations, canned peas and canned string beans are usually in the stores and will help to give variety. In addition, yellow vegetables used more freely will supply vitamin A; generous amounts of legumes, potatoes, and whole grain products will furnish iron; and potatoes, cabbage, and tomatoes, if used freely, will provide ample vitamin C (ascorbic acid).

TABLE 13

A COMPARISON OF THE NUTRITIVE VALUE OF BEETS AND BEET GREENS

	<i>Iron</i>	<i>Vitamin A</i>	<i>Ascorbic Acid</i>	<i>Riboflavin</i>
	mg.	I.U.	mg.	mg.
Beets, 4 oz.	0.8	20	8	0.04
Beet greens, 4 oz.	2.7	5600	29	0.14

Frozen green vegetables also help to give variety when cost does not have to be considered.

Lettuce. A few leaves of lettuce, especially bleached leaves, do not qualify as a dark green vegetable. While the two or three leaves in a salad should be eaten for the nourishment they do contain, it would take more than one large head to supply as much iron, vitamin A, and ascorbic acid as an average-sized serving of cooked kale, dandelions, or other green leaf vegetable. Lettuce is an expensive vegetable when purchased in city markets; too, and when used, even in salads, its cost may deprive one or more members of a family of some necessary food, such as citrus fruit.

Home-grown Lettuce. Families who have gardens are likely to

grow lettuce with open heads which have darker green leaves than iceberg lettuce and will be more nourishing because they contain more vitamin A and ascorbic acid, but even home-grown lettuce is not a good substitute for such vegetables as spinach, chard, mustard greens, and dandelions. These, or similar vegetables, need to be served two or three times a week in addition to lettuce for a well-balanced diet.



Cabbage. Cabbage is a "stand-by" among vegetables, its chief contribution being ascorbic acid. On days when cabbage is served, adults may reduce the amount of citrus fruit taken, two and one-half ounces or three fourths of a cupful of chopped cabbage being a substitute for one small orange. Cabbage goes well with almost any dinner but it serves a special purpose when made into a relish to add zest to fish or bland legumes.

Most people, young boys and girls in particular, enjoy the crispness of raw cabbage in salads and cabbage slaw. Combined with apple, beets, grated carrots, celery, horseradish, and green peppers, it may be made into any number of relishes which add interest to meals and take the place of commercial products which families are often tempted to buy. When purchased, ready-made, the cost of these products is out of proportion to food value obtained and they have no place in a low-income food budget.

YELLOW AND OTHER VEGETABLES. Among other vegetables, those with a yellow color are outstanding for their vitamin A. A generous serving of winter squash will supply almost as much vitamin A as an adult needs for a day and a serving of carrots will supply even more. Since vitamin A is so essential for keeping up the resistance of mucous membranes, a liberal use of yellow vegetables, carrots, squash, pumpkin, and sweetpotatoes, can hardly be overemphasized. The Food Guide recommends one of these as an alternative to green vegetables every day. It would



be a safety measure to have a yellow vegetable at least every other day; more often if a family wishes.

Other vegetables, such as beets, onions, parsnips, eggplant, and turnips, are generally useful for increasing minerals and vitamins but they have no striking characteristics such as green leaf vegetables and those with a yellow color. They add variety and all bulky vegetables stimulate peristalsis and help to prevent constipation.

After green and yellow vegetables have been fitted into the meal plan for the week, any other vegetable may be added to please the individual family. Their preparation, as with all vegetables, needs special attention to make them tasty and tempting for their flavor is easily spoiled by overcooking and overseasoning.

CANNED VEGETABLES. When fresh vegetables are high in price or markets carry only a limited variety, such canned vegetables as beets, carrots, peas, pumpkin, and corn are good investments. They may cost a little more than fresh vegetables, but the extra cost is justifiable when others are not obtainable. The mother who works away from home during the day and has no "teen-age" daughter or other person to help with buying and meal preparation may feel justified in paying the extra cost even though fresh vegetables are in market at a lower price. Circumstances help to decide whether it is more important to economize in time and strength or in money.



There need be no hesitation about using either canned or frozen vegetables because of food value, for the nourishing qualities of both products are equal to freshly cooked vegetables. Frozen vegetables are usually too expensive for regular use in families that have to consider the best use of every dime.

To Complete the Dinner

BREAD. All dinners need to be supplemented with bread, and if a plate of bread is placed on the table everyone can eat as much

as he needs. Growing children, adolescents, and adults who are very active may need several slices at each meal but no one should eat so much that other foods are neglected.

MILK. Each child will need a cupful of milk and if adults are inclined to neglect the two glasses they need during the day, it may be necessary to include part of it in such cooked foods as a creamed vegetable or a milk pudding of some kind.

DESSERTS. Desserts are not always necessary but are often desirable as a source of calories. They also provide an agreeable ending to a meal which sends the family away from the table with a feeling of being well-fed. Just as vegetables should be selected to supplement the main dish at dinner, so desserts should be planned to supplement the whole meal.

To Increase Calories: Use such desserts as cereal puddings, cereal molded with figs or dates and served with lemon sauce, rice and molasses, cottage pudding, apple dumpling made with biscuit crust, sponge cake, gingerbread, muffins with cooked dried fruit, and bread with brown sugar.

To Add a Tasty Ending: Use such desserts as fruit, fruit whips, baked Indian pudding, lemon custard, apple tapioca, cottage pudding with lemon sauce.

For a meal that contains a liberal amount of fat, fruit makes a pleasant ending.

Other Suggestions for Planning Dinner

Provide some color in each meal.

Avoid repetitions, such as rice pudding when rice is included in the main part of the meal.

Avoid too many starchy foods in one meal, such as macaroni, potatoes, and rice pudding; or baked beans, potatoes, and apple dumpling.

Avoid too many "thin" foods in one meal, such as soup, milk, tomato juice, and soft custard.

Avoid too many acids in one meal, such as tomato soup, sweet-sour cabbage, and fruit for dessert.

IV. Lunches and Suppers

Lunches and suppers often require more thought and attention than either breakfast or dinner because so many more problems are involved.

Small children and elderly adults need nourishing but easily digested food for both lunch and supper with the hearty main dish at noon.

Adults who are going to do light work during the afternoon need only a light lunch, or light supper if dinner is at noon.

Adolescents and adults who are going to do hard physical work during the afternoon need very sustaining meals both noon and night.

Lunches should consist of foods that need little chewing to make eating easy for children who have only a short time in which to eat.

If lunch must be served in relays, it should consist of foods that will remain attractive when reheated.

Lunch and supper should supplement breakfast and dinner.

In brief, the lunch and supper problem involves the planning and preparing of meals that will suit the needs of various age groups and fit in well with the other two meals of the day. It may be necessary to plan lunches consisting of foods that can be eaten quickly and will not lose their attractiveness and appetizing appeal on standing and reheating. The two meals are similar in make-up and will be treated in one discussion.

Supper or a Home Lunch

ITS MAKE-UP. Supper and lunch, whether eaten at home, carried in a box, or purchased at a lunch counter, should include:

Something substantial: either a hot dish including a vegetable, or sandwiches with hearty fillings, possibly both.

Bread or sandwiches.

Milk for children, and for adults if they do not get their two cupfuls at the other two meals.

A dessert.

LEFT-OVERS. A trip to the kitchen at the last minute to pick up anything handy often results in an unsatisfactory meal from the standpoint of nutrition, yet left-overs save time and expense. When depended on for lunch or supper, the right kind of left-overs should be on hand. A cooked vegetable, some baked beans, and cooked fruit can always be used to good advantage and, when supplemented with such foods as eggs, peanut butter, canned fish, and cheese, make excellent light meals. Most delicatessen store products, such as cooked ham, beef, sardines, and smoked fish, are too expensive for low-income food budgets but liverwurst is one of the ready-to-eat meats that may be purchased at low cost.

SANDWICHES. Sandwiches are convenient because they are easy to make, they can be made individually as each person comes in for lunch, and there is very little cleaning to do after the meal is over. If properly made with whole grain or enriched bread and a substantial filling, such as eggs, beans, or peanut butter, they can serve as the basis of a very nourishing lunch. Each person needs at least one sandwich with a substantial filling. The addition of grated raw carrot, chopped green pepper, or other raw vegetable will add to its attractiveness and will contribute some minerals and vitamins. The amount of vegetable in one sandwich is too small to replace one of the servings called for in the Food Guide and even a sandwich with an entire chopped vegetable filling is only a partial substitute for one of the two vegetables needed each day.

A variety of sandwiches should be provided from day to day to keep interest and appetite. Some suggestions are included:

General Suggestions:

Whole wheat and enriched bread are most nourishing; raisin bread, rye bread, and pumpernickel may be used for variety.

Salad dressing mixed with the filling will help to keep the sandwich moist.

Butter or margarine is not essential but will add calories if needed; it also will help to prevent the filling from making the bread soggy.

Fillings with penetrating odors, such as sardines and onions, should be avoided in a lunch box unless each sandwich is well wrapped in waxed paper.

Fillings:

Baked beans; combine with tomato or a relish.

Cheese; use American or store cheese, plain or with sliced tomato; combine cottage cheese with chopped raw vegetable or dry herbs, such as sage.

Eggs; mix chopped hard-cooked egg with chopped green pepper and salad dressing.

Meat; use sliced or chopped meat with tomato or chopped carrot or green pepper.

Peanut butter; mix with salad dressing or thin with evaporated milk. Add chopped raisins or other dried fruit.

Vegetables; use a combination of left-over vegetables and moisten with salad dressing.

Sweet sandwiches; sweet sandwiches may be used for dessert but always in addition to more substantial sandwiches. Use brown sugar, soft maple sugar, or home made jelly. Jam may be combined with cottage cheese.

A HOT DISH. A hot dish is not essential in summer and early fall, but even though the physiological reason for hot food in winter has not been established, everyone will agree that it helps to give a cheerful feeling of warmth which may influence the flow of the digestive juices.

A left-over vegetable or some cooked fish makes it easy to prepare a hot creamed or escalloped dish or a milk soup. When these dishes are served with whole grain or enriched bread, a glass of milk—unless milk has been used in the “hot dish”—and a dessert, they make an excellent lunch or supper for children and adults doing light work. Adolescents and adults engaged in vigorous physical work may need a hearty sandwich or its equivalent in addition.



RAW VEGETABLES. Children as well as adults usually enjoy crisp raw carrots, raw green peppers, and other vegetables that are appropriate to eat raw but it takes time to chew them properly and a person who has a short noon hour or a long distance to go from school or office has little time for chewing. Under these conditions, it would be better to save foods that need much chewing until the evening meal or as an afternoon bite when children may be urged to eat slowly and chew food thoroughly.

SOME SIMPLE LUNCHESES

Lima bean, onion, and milk soup with grated raw carrot or chopped green leaves sprinkled over its surface; whole grain or enriched bread or a cheese sandwich; fruit tapioca.

Creamed potatoes and peas; whole grain or enriched bread or a liver-wurst sandwich; milk, applesauce and molasses cookies.

Cheese sauce poured over spinach or broccoli; whole grain or enriched bread; milk; gingerbread.

Vegetable chowder made with beans, potatoes, onions, tomatoes, and barley or brown rice; whole grain or enriched bread or a peanut butter sandwich; milk; cup custard.

SALADS. In summer, the fresh green leaves, the stimulating effect of salad dressing, and the color in a salad often play an important part in tempting the appetite on hot days but, like soups and sandwiches, salads need to supply good food values as well as be attractive. This may be provided through the addition of cottage cheese, potatoes, soybeans, canned fish, and other similar foods while chopped young spinach leaves, romaine, or other inexpensive greens make a more nourishing, as well as a less expensive, foundation than lettuce.

Some inexpensive but nourishing salads are:

Cottage cheese and chopped vegetables, raw or cooked
Potatoes, egg, and onion
Soybeans and tomatoes

Canned salmon and chopped raw vegetable
Bananas and chopped peanuts
Cabbage and apple, served with peanut butter sandwiches

Salads are often low in calories, but if served with whole grain or enriched bread, each person can eat bread in proportion to the calories needed and lunch or supper will be adequate. If additional calories are necessary, a high-calorie dessert may be added.

The Lunch Counter

FOR ADULTS. Crowds around lunch counters and in cafeterias indicate the large number of men and women who eat hurriedly at noon and have only a small variety of foods from which to select their lunches. Choices are usually limited to sandwiches; possibly a tomato salad; milk, milk shakes, cocoa, or soft drinks; ice cream, cakes, pies, or puddings, such as rice or tapioca. If vegetable soup is offered, the quantity of vegetables in it is usually too small to be of much nutritional value. Its chief purpose is to provide something hot on a cold day. Other vegetables are seldom on the menus and even though they were available, it is probable that their food value would be so low after standing on a steam table for an hour or so that they would not be worth the money spent for them.

According to a report from the Committee on Nutrition in Industry, National Research Council, vegetables that are kept on steam tables during the lunch hour lose about 90 per cent of their thiamine and over 80 per cent of their ascorbic acid. Since the eating of such devitaminized vegetables may give a false sense of security, it would be safer for adults who eat at lunch counters to spend their money for other foods at noon and plan on having their two vegetables for the day in the evening meal at home.

Best Selections. With the limited variety at a lunch counter, the wisest combination is a sandwich, milk, and a dessert if desired. Some suggestions for those who need light lunches are

given in the left-hand column of the lists that follow, while modifications suggested in the right-hand column will increase calories to make them adequate for those doing strenuous muscular work.

LIGHT LUNCHES

Egg Sandwich
Glass of milk
Fruit or ice cream

Tomato sandwich
Glass of milk
Rice or tapioca pudding

Vegetable salad with cottage cheese
Crackers
Milk shake

HEARTY LUNCHES

Two egg sandwiches or one egg and one tomato sandwich
Glass of milk
Cake, pie, or double portion ice cream

Two baked bean and tomato sandwiches
Glass of milk
Rice or tapioca pudding

Vegetable salad with two cheese sandwiches
Custard pie

In these lunches, milk has been included as the beverage because adults are likely to neglect it at other meals, but if two glasses of milk are taken at the other two meals, doubtless the majority of adults would prefer coffee at noon. They may want coffee in addition to milk.

FOR CHILDREN. A school child who is given money and told to buy his lunch near the school will spend it for the bulkiest, most tasty, and most immediately satisfying foods he can find, no doubt, such as frankfurters, doughnuts, ice cream cones, and candy bars. His judgment is good in selecting foods that give him most calories for his money but they are low in health protection. They contain little of the sustaining qualities necessary for growth and endurance. As these foods do not "stand by" for long, the chances are that by the middle of the afternoon, a child who has eaten a lunch of this nature will feel unusually tired and find it difficult to keep his attention on his work. Doubtless he will rush to the nearest food stand as soon as school closes to buy more "energy" and by dinner he is likely to have little appetite for his milk and vegetables.

When this type of lunch is eaten over a considerable period of time, there is grave danger of hidden hungers. Some means for getting a good noon meal should be available for all children who are unable to go home for lunch. Some good lunch counter suggestions are:

Cream of potato soup

Peanut butter sandwich made with whole wheat or enriched bread

Tapioca pudding

Baked rice and cheese

Chopped cabbage and grated raw carrot on whole wheat or enriched bread

Glass of milk

Cooked dried fruit

Vegetable chowder

Cottage cheese and chopped green pepper sandwich made with whole grain or enriched bread

Rice pudding

Potato soup with chopped raw spinach

Egg sandwich made with whole grain or enriched bread

Glass of milk

Jelly sandwich for dessert

Responsibility. The lunch of the child is a public health concern because of its influence on his future health as well as his present physical condition. How can a child who lives some distance from school and is unable to go home at noon be assured of a proper lunch?

Does the community feel any responsibility for providing luncheon facilities for such children?

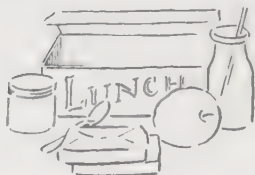
Does the school have a lunch room? If so, will the selection of lunches be supervised by a person competent to guide children in the selection of foods they need?

In case school lunches are not available, can a lunch box be made satisfactory? If, for instance, box lunches were carried by a sufficiently large number of children, would it be possible to interest school authorities or some group in the community to be responsible for at least one hot dish each day through the winter which may be eaten with a cold lunch carried from home?

Could some other satisfactory arrangement be made?

The Lunch Box

APPEARANCE. Eating from a box or paper bag is not the most interesting way in which to take the noon meal, yet there are some situations in which it seems to be the only solution for a nourishing meal in the middle of the day.



When a box lunch is carried, it should be as attractive as possible because the appearance of the box is often as important as what goes into it. The chances are that a lunch which is interestingly packed will be completely eaten much more frequently than the same food put into a box with no attention to its appearance. To make lunches attractive, this equipment is convenient and can be used as needed:

A washable pail or box, always clean, with holes punched near the top to admit air—this container should be aired at night.

Light aluminum containers for soft foods, such as rice pudding.

Glass jars with screw tops for such foods as salads and applesauce.

A thermos bottle for milk, hot soups, or hot or cold tea and coffee.

Paper napkins, straws for drinking milk, and paper spoons for soft foods.

Clean waxed paper for wrapping sandwiches, cookies, and cakes—to keep them moist and improve the appearance of the box.

Straws for drinking, paper spoons, and waxed paper are articles which add to the attractiveness of a lunch but they have to be replaced each day and add to the expense of the lunch. When cost must be kept at a minimum, it may be necessary to omit these conveniences so as to provide enough food.

THE PAPER BAG. While the lunch box and the conveniences mentioned add to the variety of foods that may be carried, some prefer to carry a lunch in a paper bag that can be discarded after its contents have been eaten. This may have its advantages, but it limits the lunch to sandwiches, strips of raw vegetables, fruit, and cake or cookies. The paper bag does not permit a bottle of milk but oftentimes that can be purchased at a near-by store. In instances where lunches of this kind must be provided, extra care

is needed to make the lunch as nourishing as possible and to make it attractive enough to tempt the appetite.

MAKE-UP OF A BOX OR BAG LUNCH. A lunch carried from home should contain at least two sandwiches with not more than one sweet sandwich in any one day. Milk should be provided in some form. A few tender leaves of young spinach or strips of raw carrot or raw green pepper add color as well as some nourishment. A dessert is useful as a means of adding calories to prevent a craving for sweets later in the day. Some desserts that are easy to pack into a lunch box are:

Fresh fruit, such as a banana, orange, tangerine, apple, pear, and grapes; with the exception of grapes, all may be carried in a bag as well as in a box.

Cooked fruit, such as applesauce or cooked prunes; do not put fruit or any acid food, such as tomatoes, in so-called aluminum containers as some alloys are affected by acids.

Soft desserts, such as tapioca or rice pudding and chocolate cornstarch, may be carried in the lunch box if glass containers are possible.

Cookies, such as oatmeal and molasses, and simple cakes are easy to pack in the bag as well as the box.

SURPRISES. A surprise every few days adds interest to the lunch and stimulates the appetite. These should not appear too frequently, however, for this would defeat their purpose. Some surprises are: salted peanuts, soft but uncooked prunes, a few raisins, a fig or two, roasted soybeans, or a piece of sweet chocolate.

CAUTIONS.

Pack lunch carefully to prevent mashing.

Place foods to be eaten first on top of the box so the appearance of the box may be maintained throughout.

Have outside wrapping neat and clean.

Vary the food from day to day.

CHAPTER VI

FOOD CUSTOMS OF VARIOUS RACIAL AND NATIONAL GROUPS*

Characteristic food customs of every racial and national group are worthy of respect. Many racial food practices may be better than some commonly suggested as substitutes. Changes in food customs need to be made only when necessary for the health of the family.

The important points to be emphasized are foods for good nutrition and preparing them so as to preserve maximum food value. Consideration should be given also to the influence of preparation practices on the digestion and assimilation of food.

Knowledge of a family's food customs may help in establishing friendly relationships.

I. The Stranger in America

IN RECENT years, immigration laws have restricted the number of arrivals in the United States from other countries, but many of foreign birth who have been in this country for a long time

* This material is based on information gathered from members of various racial and national groups, from those who have been in positions to observe their customs, from personal observations, and from the following printed material: Reports from the Committee on Food Habits, National Research Council, Washington, D. C.; *Eating Around the World*, Community Education Section of the New York State Dietetic Association; *Food Customs from Abroad*, Massachusetts State Department of Health, Boston; *What's Cooking in Your Neighbor's Pot?*, Common Council for American Unity, New York City; and material prepared by the Budget Committee of New York City.

still cling to some of their "old country" customs and many Americans of foreign parentage have been strongly influenced by the habits they were taught as children.

Anyone who advises such families about adjusting to conditions in this country can be most helpful if she has some knowledge of their inheritance in food practices. That is why the chief food customs of seven racial and national groups are given in this chapter. The people of the Near East, Czechoslovakians, Italians, Jews, Poles, Puerto Ricans, and Southern Negroes are the groups included.

VARIATION IN FAMILY HABITS. A complete picture of the food customs of any one of these groups is impossible in the space of a few pages because of the variations within any one country or group. Families with the same background may vary in their likes and dislikes and in their practices as do the members of an individual family. Families living near the border of another country have, no doubt, adopted some of the habits of their neighbors who belong to another racial group. Often families come to the United States by way of another country from which they may have acquired modifications of their original habits. Probably no family will have all of the customs described as belonging to any given group, for food habits of most families are in various stages of modification and adaptation.

The information given here applies especially to families with limited incomes who have come from foreign rural areas where they have produced their own vegetables, fruits, and grains and raised the animals that provided them with meat, milk, eggs, cheese, and fats. Presumably these families are in greater need of help in adjusting to our market conditions and food prices than families from foreign cities who are accustomed to variations and will be more flexible in adjusting to a new environment.

FAMILY ATTITUDES. An appreciation of what food means to a family is often as essential as a knowledge of the approximate food value of its meals and the way in which its food is prepared. Food habits are usually deep seated, often handed down from generation to generation, each group being very devoted to its own customs. Some food habits are built around religious ob-

servances which may not be changed by the individual family. In some groups, food has been the family's main interest and most of its activities were connected with some phase of food cultivation, food preparation, and the serving of food to guests. To urge a family to depart suddenly from such racial food traditions may cause a lack of cooperation in making other changes essential for health protection.

Helping To Adjust

In helping a family with a foreign background to adjust its food problems, a strategic approach is an informal conversation with the members of the household about their former customs. In this way, the nurse may become familiar with the food practices in the family, the degree to which it has already adjusted to conditions in this country, and reasons why it still clings to some of its old customs. At the same time, the nurse may want to tell the family some of the customs common in the United States which will be of value in supplementing or modifying its own.

Familiarity with some of the dishes and foods characteristic of the racial group to which the family belongs may be a means of securing interest. For instance, to ask a Greek mother if she makes dolma may help to establish a bond of friendship which will be helpful in securing cooperation, whereas to suggest that oatmeal should be used for breakfast may cause the mother to become reserved, which is her way of protecting the customs she has been taught to respect.

A complimentary word about some food which is commonly used in that racial group or has been in former days is another approach that may encourage a family to adopt an essential food. For instance, a Czech family might be persuaded to eat oatmeal if reminded of the wisdom of its forefathers in using it. Some commendable practices and common dishes which may be useful for such purposes are given at the end of each section.

Even though the nurse's primary concern is to establish food

habits which will improve the health of the family, she may be better able to accomplish this if she recognizes that the mother's chief interest probably lies in satisfying her family through pleasing combinations, prepared, seasoned and served in ways that are familiar to the family. The mother may find it difficult to understand why she should be asked to change her customs but her husband often more readily grasps the significance of recommendations made in the interest of the family welfare and may be successful in explaining to his wife the need for modifying some of their practices.

The Universal Pattern

"Food Is Food." Differences appear in racial and national food habits rather than in the actual foods used, differences which show in methods of preparation, in food combinations, and the way in which food is seasoned and served. Milk, for instance, is milk and serves the same purpose whether it comes from a cow or a goat, whether it is fresh, evaporated, or dried as in America or fermented as in many European countries. Vegetables and fruits may vary in shape and name, but they are still valuable sources of health-protective factors—minerals and vitamins.

Foods eaten by *all racial groups* may be divided into the food groups given in Chapter II—milk and its products; vegetables and fruit; eggs; meat, fish, and legumes; grain products; fats and sweets. When food habits are reviewed with these food groups in mind, logical recommendations for any given situation will often become apparent. This review often indicates that fewer changes are needed than at first seemed necessary.

Common Problems

OBTAINING FAMILIAR FOODS. One of the most common problems among families of foreign parentage holding to old customs is to find foods that are familiar or, in the absence of these

foods, to find something that will be a satisfactory substitute. Fermented milk, for instance, may be obtainable but so expensive that it takes too large a share of the food budget. Vegetables which the Puerto Ricans knew in Puerto Rico are brought into the United States in limited amounts but they, too, are very expensive. When used, other essential foods may have to be omitted from the family meals. If these vegetables are not in the market, Puerto Rican families may go without any vegetable. Among other foods that may be expensive, scarce, or unobtainable are olive oil, grape leaves, and certain herbs and seasonings. Some of these food problems are common to several racial groups and are summarized here.

MILK AND CREAM. Clabbered milk is used by several racial groups from Southern Europe but they find it difficult to make it from our pasteurized milk and if adults who have been accustomed to using it are unable to get it, they are likely to omit milk entirely. This omission may cause a calcium deficiency. The use of cheese will help to make good the loss but a person would have to take from two to three ounces of hard cheese every day to supply as much calcium as one pint of milk, while cottage cheese, used freely by these families, contains very little. A good substitute for clabbered milk is easily prepared at home—and at little expense—by diluting evaporated milk with an equal amount of water and adding lemon juice or vinegar.

Sour cream, used so freely in soups, on noodles, cottage cheese, and salads and in pastries and other desserts seems so essential to Czechs, Jews, and people from the Near East that they often sacrifice other more essential foods for it. It is nourishing but it is expensive when purchased in our city markets and should not displace milk, vegetables, fruits, and whole grain bread and cereals. A fair substitute may be made by adding lemon juice or vinegar to undiluted evaporated milk. The evaporated milk supplies not only vitamin A, one of the good qualities in cream, but provides all the other factors in fresh milk.

COOKING VEGETABLES. Many families coming from rural areas have been in the habit of cooking the whole dinner in one kettle. As explained in Section III, Chapter V, this method has its ad

vantages but it is probable that much of the value of the vitamins of the B-complex will be destroyed through overcooking and if the vegetables contain vitamin C, it also will be largely destroyed. Families who cook vegetables in this way need to be encouraged to add them near the end of the cooking process so as to save as much nourishment as possible by cooking only until tender. Since green leaves are not used plentifully in a stew, a green leaf vegetable cooked in a separate kettle is needed to supply minerals and vitamins. Some raw vegetable also should be recommended for frequent use.

GRAIN PRODUCTS. Many European groups are to be commended for the use of barley, oats, rye, and other whole grains in their own country because whole grains have such an abundance of the health protective factors. It is unfortunate that our plain white flour and refined cereals seem so pleasing to them and are often adopted, thus robbing those who use them of a large amount of iron and a good source of vitamins of the B-complex. These families need to be encouraged to continue their custom of using whole grains freely, to use enriched bread instead of plain white bread, and brown rice in place of white rice. Since long cooking of the grains in stews will destroy a large part of the B-complex vitamins, children especially need a whole grain cereal for breakfast and adults should have a generous amount of whole grain bread.

OLIVE OIL. The high cost of imported olive oil creates an economic problem in many low-income families from Southern Europe. Until recently, they found it almost impossible to accept substitutes, yet its cost frequently deprived them of other essential foods. During World War II when little olive oil was being imported, however, families began to use the small amount they could buy to flavor our salad oil. This practice was rather extensive then and may be a solution for families when maximum food value must be obtained at minimum cost.

FRIED FOODS. Frying is a method of cooking not confined to any racial group. It is especially common among families from Southern Europe, however, and presents a real problem. Fried foods may retard digestion, use energy that is often needed for

growth and maintenance, and may cause digestive disturbances. They are particularly undesirable for children and those with slow digestion. Methods other than frying, such as braising, baking, steaming, and boiling, need to be emphasized.

II. Food Customs of the Near East: Armenia, Greece, Syria, Turkey

Food Practices

Some of the families from the Near East have been accustomed to crude equipment. They may have cooked over charcoal and without ovens, conditions which afforded little opportunity for variety. Even in the United States where equipment permits a more varied preparation, many follow their traditional methods to a considerable extent. Limited methods of preparation and unfamiliar market conditions may result in meals deficient in vitamin A, vitamin C, and possibly calcium for adults.

FERMENTED MILK. Since houses in the rural areas of the Near East countries are not equipped with refrigeration, fermented milk and sour cream are commonly used—plain, in soups, in cooking meats, on raw vegetables, and with cottage cheese and pastries. Fermented milk is called matzoon in Armenia, yaourt in Greece, yogurt in Turkey, and yoghurt in Syria.

In America, these people may adopt pasteurized milk for small children, but many adults who are unable to get fermented milk at a reasonable price go without milk, thus dangerously reducing their calcium and vitamin intake. Those who buy fermented milk usually find it so expensive that other essential foods are sacrificed.

FAMILIAR VEGETABLES. Most of the vegetables grown in the Near East are found in our markets: broccoli, cucumbers, dandelions, eggplant, leeks, okra, onions, peppers, and tomatoes being most popular. Few dark green leaf vegetables and not many potatoes are used in these southern countries. A liberal use of green leaves would make a more health-protective meal pattern by

supplying an abundance of vitamin A as well as iron while potatoes would increase iron, vitamin C, and vitamins of the B-complex.

Sometimes vegetables are fried in oil and stuffed with cracked wheat or rice, sometimes they are cooked in a soup or stew with meat or legumes, the most commonly used legumes being yellow split peas, chick peas, and navy beans. Methods of food preparation need careful reviewing in many of these families as frying is a very common method and even the children may have fried foods.

CITRUS FRUIT NOT PLENTIFUL. During the summer, fruits and melons are plentiful in the Mediterranean countries while the use of dried apricots, raisins, figs, and dates predominates during the winter. Since none of these dried fruits, with the exception of apricots, makes any special contribution to nutrition requirements, and all except raisins are usually expensive in this country, at least part of the money spent for dried fruits would be better invested if it were used to buy oranges as a source of vitamin C. The diet of these people seems to be low in this factor. Canned tomatoes, raw cabbage, and properly cooked dark green leaf vegetables will also increase vitamin C.

THE HEARTY MAIN DISH. Lamb, a common meat in the Near East, is often cooked with vegetables and rice or cracked wheat. Or it may be ground and used as a stuffing for such vegetables as eggplant, squash, and green peppers. It is often cooked on skewers over an open flame. In the first two methods mentioned for cooking meat, a small amount of an inexpensive cut of meat is used to flavor a large amount of vegetable and grain, a very commendable practice.

Chicken and eggs are common as is fish, fresh fish being available for those living on the coast while those living inland have only salted or smoked fish because of lack of rapid transportation and refrigeration. Legumes, chestnuts, hazelnuts, peanuts, and pignolias are also used as a part of a meal. Meat, fish, eggs, milk, cheese, legumes, and nuts provide such a wide variety of protein sources that families from the Near East have little difficulty in planning their hearty dish for the day, whatever the market conditions.

FAST DAYS. On Wednesdays and Fridays and during their two forty-day fasts, Lent and Advent, when Greeks eat no meat, their meals consist chiefly of fish, vegetables, olive oil, and ripe olives which they use in place of butter.

BREAD. In rural areas in the Near East, bread, a thin flat cake made of cracked wheat or white flour, is often baked on a griddle and served without butter though it may be dipped in meat gravy. Cracked wheat is largely used but they like our white flour and are inclined to substitute it for their own far more nourishing cracked wheat. This is unfortunate because it reduces the quantity of vitamins of the B-complex and iron which they should be receiving from grain products.

FATS. Ripe olives are often used with bread in place of butter, but lamb fat, seed oils, and olive oil are common in cooking and when these oils are expensive or difficult to get, fortified margarine and our salad oils may be accepted. These people who use many peanuts should not find it difficult to learn to like peanut butter.

GRAPE VINE LEAVES. Grape vine leaves, preserved in brine and imported from Europe, are an important item in the preparation of such dishes as sarma and mean as much to the Greeks as the foundation leaves of our salad do to us. When war conditions made grape leaves unobtainable, however, some families substituted the outer leaves of cabbage which they wilted in hot water so they could roll them easily without cracking. This is an inexpensive substitute which low-income families may be willing to adopt, for imported grape leaves are expensive and may not always be available.

HERBS AND SPICES. Mediterranean housewives make their food tasty with herbs, seeds, spices, and other flavoring. The Greeks are especially fond of herbs and such seeds as sesame and caraway, while the Syrians use rose water and molasses made from grape leaves.

Their Meals

GREEK MEALS. It is not unusual for Greeks in this country to have bread and coffee for breakfast, though the children may

have milk and possibly fruit. Very young children need a hot whole grain cereal in the morning but there is no reason why the older children may not continue to have bread, provided it is whole grain or enriched. During the winter, hot milk poured over the bread, plain or toasted, might be more appetizing.

Noonday and evening meals are often similar in Greek homes, the left-over portion from the midday meal being served at night, often without reheating. These meals may consist of soup containing meat or legumes and other vegetables, or pilaf, or a vegetable stuffed with meat and cracked wheat. These will be served with bread and coffee.

SYRIAN MEALS. The Syrian breakfast resembles that of the Greeks and the suggestions about whole grain cereal for young children and whole grain bread for other members of the family apply equally well here. The Syrian noon meal may consist of kebi or meat soup and bread with paklava or a fruit compote for dessert. Coffee is always served.

Such combinations indicate that attention needs to be given to increasing calcium, vitamin A, and vitamin C (ascorbic acid) through the use of milk, dark green leaves, and citrus fruit or tomatoes among both the Greek and Syrian families.

NOURISHING DESSERTS. Nuts and honey appear frequently in the desserts of families from both Greece and Turkey. A rich pastry covered with nuts and honey resembles Hungarian strudel; cracked wheat is sometimes boiled with honey and nuts to make a dessert called kenafi in Syria and boulgour in Greece; and bread may be served with cream and honey. These are nourishing combinations but the cost of honey in many sections of this country may make it desirable to substitute brown sugar or corn sirup. Fruit compotes, paklava, apricot candy, Turkish paste, and pumpkin seeds are among their popular sweets.

Commendable Points About Near East Food Customs

If foods characteristic of the Near East countries are used in proper amounts, it is possible to provide meals that are adequate

for good nutrition, with a possible deficiency of ascorbic acid (vitamin C).

A small amount of inexpensive cuts of meat is used to flavor a large amount of vegetable and grain products. This is desirable in case economy is necessary. Legumes, other vegetable, and whole grains are used generously. This is a very commendable custom.

Sweets used by Near East families contain more nourishment than our sugar which they often adopt when coming to the United States.

Points That May Need Attention

When families from the Near East come to the United States to live, there is danger that adults will take too little milk. This will lead to a calcium, and possibly vitamin A, deficiency. They should be encouraged to use more milk in cooked foods.

Such foods as raw and canned tomatoes, raw cabbage, raw green peppers, oranges, and potatoes cooked in their jackets may be suggested as sources of vitamin C (ascorbic acid).

It may be necessary to help families to plan food budgets to guard against a reduction in the quantity of vegetables used.

Enriched flour should be urged in place of plain white flour and brown rice instead of white rice.

Since these families are familiar with peanuts, peanut butter may be acceptable as a spread for bread when they are unable to get fats with which they are familiar. Our salad oils should be **acceptable to them.**

Methods used in preparing foods need to be carefully observed. Fried foods and foods cooked in fat should not be given to children.

Typical Dishes of the Near East

All Near East Groups:

Cracked wheat and rice are commonly used in place of potatoes. Nuts and fruit are common desserts. Bread, honey, and cream is a nourishing combination.

Dolma—Vegetables, such as eggplant, squash, tomatoes, peppers, and cabbage, stuffed with cracked wheat or rice, with or without chopped meat.

Sarna—Grape leaves stuffed with rice, ground meat, and tomatoes; rolled and tied; then boiled while held under water with a plate or other weight.

Armenian and Syrian:

<i>Herissa in Armenia</i>	} Finely chopped meat mixed with cracked wheat and chopped onion
<i>Kebi in Syria</i>	

Armenian, Syrian, and Turkish:

Pilaf—Rice or cracked wheat cooked in meat stock and served with meat; cucumbers, onions, tomatoes, and quinces may be served with the pilaf or cooked with it. Turkish pilaf contains rice browned in fat.

Shesh Kebab—Meat broiled on a spit or skewer over coals or before an open fire.

Greek:

Pichty—Dried peas cooked in a meat stock, strained, and seasoned with lemon juice, and molded with gelatin.

Boulgour—Cracked wheat with honey and nuts.

Syrian:

Hummos Bitahiny—Chick pea salad.

Kenafi—Cracked wheat baked with nuts and honey.

Lokma—Dough dumplings into which eggs are kneaded, thus causing it to puff up and form a hollow shell when cooked; this is served with rose water.

III. Czechoslovakian Food Customs: Czechs in Bohemia; Moravians in Moravia; Slovaks in Slovakia

Loyalty to Old Customs

In discussing food problems with a Czechoslovakian family, it is important to know whether the family is from Bohemia, Moravia, or Slovakia for the Czechs and Slovaks are very loyal to their particular food customs. The Moravians in the central

section of Czechoslovakia share so many customs with both the Czechs and the Slovaks that their habits will not be mentioned separately.

When Czechoslovakians come to America, they usually settle in a Czechoslovakian community, associate chiefly with those whose customs are similar to their own, read their own newspapers, and speak their own language in the home—often to the third generation after coming to the United States. Czechs also do much of their marketing at stores owned and operated by fellow countrymen who foster “old country” habits of eating—all of which tends to retard their awareness of progress in the science of nutrition.

Few families, even those who have been in this country for some years, have departed from their major food customs. The kitchen may be very modern in all its equipment, but, in the main, food is Czechoslovakian. Mothers who work are becoming exceptions to this rule, however, for they often buy a can of vegetables and a piece of meat on their way home at night for quick cooking.

ALERTNESS TO THE NEEDS OF CHILDREN. Czech mothers are alert and open-minded to the benefits that may be derived from scientific meal planning and respond to reason. Most Czech mothers are so convinced of the value of modern methods of feeding children that the majority of the present generation are getting milk, fruit, vegetables, and cod liver oil if the family income permits.

Czechoslovakian Meals

Czech meals may seem heavy and without much variety but typical meals as served in rural areas in Czechoslovakia contain adequate sources of all of the essential nutrition factors, with the possible exception of vitamin C. Milk, cheese, eggs, legumes, other nutritious vegetables, whole grains, and all parts of the animal contribute to very nourishing meals. Even the blood of animals is used.

In a Czech family in a rural community, soup made with po

tatoes, cabbage, onions, and carrots, or legumes and barley, served with sauerkraut, whole wheat bread or pumpernickel, and quantities of milk may appear three times a day.

Roasts with dumplings will be served on Sundays while Czechs who live in cities where there is a greater variety of foods may have roast and dumplings several times a week. Pork is the national favorite, but veal, goose, and beef are often used. Sour cream may be added to the beef gravy which is served with dumplings.

Slovak meals show the influence of a warmer climate with their greater variety of vegetables and fruits when available or when the family can afford them. Many Slovaks, however, work in the mines or steel mills of this country. They must trade at company stores and find only a limited variety with few fresh foods.

Their Foods

MILK. In Bohemia, buttermilk, clabber, and fresh milk are all used, while fresh milk is more common in Slovakia. Both groups use cottage cheese and sour cream. Even though milk is not taken from a glass or cup, it is used freely in sauces for vegetables, in milk puddings, and in baked goods.

If families have a tendency to reduce the use of milk in this country, possibly they can be persuaded to make clabber from evaporated milk. Evaporated milk should be obtainable in all stores, including company stores in mining and mill towns.

THE HEARTY DISH. In Czechoslovakia, the protein content of the meals of both the Czechs and the Slovaks is well taken care of through a liberal use of such legumes as lentils, yellow split peas, and white navy beans. These are supplemented with eggs, pickled herring, many varieties of sausage, including blood sausage, and all parts of the animal, such as tripe, brains, and lungs. The variety meats are often prepared with sour cream. This is a wide choice of protein foods from which to select the main dinner dish. The meals of Czechoslovakians will not be seriously influenced when meat and eggs are scarce or the prices

seem too high for a low-income family, provided milk, legumes, and whole grains are used freely as in the "old country."

VEGETABLES. Slovaks are familiar with a greater variety of vegetables than the Czechs, especially green leaf vegetables. Cabbage, carrots, potatoes, spinach, and tomatoes are well known and popular in both groups. All contribute to the building up of satisfactory meals because of the amount of minerals and vitamins they supply, especially iron, vitamin A, and vitamin C. Potatoes, raw cabbage, and tomatoes, fresh or canned, need special emphasis to supply vitamin C because Czechoslovakians eat little citrus fruit in this country. More attention needs to be paid to the cooking of all vegetables, especially cabbage, to save maximum food value. The Slovaks, and perhaps the Czechs, might respond gradually to raw vegetable salads served with a dressing made with evaporated milk and vinegar. Children should have citrus fruit as a source of vitamin C.

Other vegetables with which the Czechs are familiar are beets, celeriac, kohlrabi, leeks, onions, parsnips, spinach, and turnips. Spinach is about the only dark green leaf vegetable used but it is commonly served. It is often chopped or strained and added to a white sauce. For variety, the tops of beets, turnips, and kohlrabi, all of which families have grown in their own country, might be suggested.

GRAIN PRODUCTS. The Czechs use a large variety of grain products and in many interesting ways, such as rice cooked in milk, or barley served with mushroom sauce, either as a part of a meal or as a meal by itself. They use farina and cream of wheat. Czechs are accustomed to pumpernickel and sour rye bread, but their dumplings and pastries are made with white flour. Brown rice, enriched farina, and enriched flour all need emphasis. Czechoslovakians also might be persuaded to return to an excellent habit of their forefathers who used oatmeal freely.

FATS. Foods of the Czechoslovakians are neither overly rich nor unduly sweet. Butter is used in baking and bacon and goose fat are used on bread, a practice that may influence the vitamin A content of their meals, especially in those families in which milk is neglected and dark green vegetables are used infrequently.

Doubtless Czechs will accept fortified margarine if they understand that it will furnish vitamin A which they need. The use of dark green leaf vegetables at least every other day needs to be urged. If lettuce predominates, heads with all green leaves should be selected as only those leaves contain enough vitamin A to be of real worth in increasing this factor. Children will, of course, have fish liver oil which will provide them with vitamin A as well as vitamin D.

SWEETS AND SEASONING. Czechoslovakians have the commendable habit of using few sweets. Honey and dried fruits are their chief sweetening agents but children soon learn to like our candy. Many mothers are not aware of its harmful effects. Since they are eager to do everything possible for the welfare of their children, they will appreciate being told of the dangers in connection with its use in large amounts.

Foods are made appetizing through the use of caraway, poppy, and sesame seeds, spices, nuts, and honey.

Commendable Points About Czechoslovakian Food Customs

The native Czechoslovakian uses much milk, either goat's or cow's, and quantities of cheese, both cottage (soft) and farmer's (dry).

Cabbage, carrots, legumes, potatoes, and tomatoes, some of the most nourishing vegetables, are used freely.

Their selection of inexpensive and nourishing meats is a wise economy measure. Czechoslovakians formerly used oatmeal freely. It is less commonly used today.

Meals are simply cooked without much fat.

Little concentrated sweet is used in the "old country."

Points That May Need Attention

Czechoslovakians need to be reminded of the habit of using milk freely in the "old country" and of its importance in supply

ing calcium as well as other important factors essential for maintaining strength and vigor.

The use of beet tops, mustard greens, turnip tops, and other green leaf vegetables will give variety to the spinach. The cooking of cabbage without chopping and in as short a time as possible needs emphasis.

Both Czechs and Slovaks need more fruit and raw vegetables.

The use of whole wheat and enriched bread and cereals, oatmeal, and pumpernickel should be encouraged to supply vitamins of the B-complex and iron.

It is unfortunate that children acquire the habit of drinking soda pop and eating candy in this country. Their harmful effects need to be explained.

Typical Dishes of the Czechoslovakians

Czechs and Slovaks:

Dumplings served with meat—Czech-Knedliky; Slovak-Halusky

Dough made with flour and milk to which potato or cheese may be added; mixture is boiled and may be served with mushroom or tomato sauce or dill and sour cream.

Dumplings served as a dessert—Dough made as for meat dumplings, possibly richer; sometimes made with fruit centers; may be served with brown butter and poppy seed.

Strudel—Thin dough filled with apple slices.

Tvaroh—Home made cheese; soft cheese is called cottage; dry cheese with whey pressed out is called farmer's cheese.

Vánočky—Christmas braided yeast loaf, served from Christmas to New Year's.

Mazanec—Easter loaf made with yeast, raisins, and almonds.

Czech:

Buchtý—Yeast buns filled with dried plums, poppy seeds, or cheese (Tvaroh).

Slovak:

Brindza—Cheese made from sheep's milk; very popular in Slovakia and usually inexpensive.

Ostepok—Slovakian smoked cheese.

IV. Italian Food Customs

Devotion to Old Customs

The Italian is devoted to his food customs, many of which have been handed down from generation to generation, and many Americans of Italian parentage now in homes of their own but influenced by the customs they knew as children still cling to some of the "old country" habits. An appreciation of variations in food customs of the Genoese in Northern Italy and of the Sicilians in Southern Italy as well as of the different racial characteristics is necessary in gaining cooperation in Italian families. Neapolitans in the central portion of Italy, having acquired some of the customs of each of the other groups, are less individualistic.

Foods Used in Italy

ABUNDANT FOODS. In Italy both milk and cheese are used in generous amounts, many families owning their own goats, and those who have no goat can buy milk for very little money. Green leafy vegetables are raised in abundance and dandelions and other wild greens are gathered from the fields. Fruit, eggs, poultry, and legumes are used freely.

MEAT AND FISH. Sicilians have little meat but they know how to make a small amount go a long way in flavoring soups and stews, or in combination with vegetables in various dishes. Along the coast many kinds of fish can be caught or purchased, including cod (used both fresh and dried), eels, flounders, halibut, ink fish (calamio), mackerel, octopus, tuna, squid, weakfish, and such shellfish as clams, mussels, and snails. Genoese have less fish but more meat—lamb, pork, some veal, and beef.

A GOOD VARIETY. If these foods are used in proper proportions, it is easy to prepare meals containing all the health-protective factors. Milk, cheese, eggs, legumes, meat and fish provide adequate protein. Milk and cheese furnish calcium. Green vegetables, many of them eaten raw, fruit, tomatoes, eggs, milk,

and meat supply iron and other minerals and vitamin A, thiamine, ascorbic acid, riboflavin, and niacin, while sunshine furnishes ample vitamin D. These meals, supplemented with grain products, such as spaghetti and bread, and oil furnish energy. Typical Italian meals should leave few hidden hungers to create a craving for sweets. These are practically unknown in the rural districts in Italy.

Italians in America

Italians and Americans of Italian parentage in this country who have little money to spend need help in planning meals which are satisfactory when judged by Italian taste standards, yet meet the requirements for good nutrition.

MILK SEEMS EXPENSIVE. When the native Italian first came to America, he found milk costing so much more here than in Italy that it became a luxury in the low-income family. Since coffee was comparatively cheap in this country, it was often substituted for milk. Young mothers of Italian parentage, however, recognize the importance of milk for good growth and most of the present generation of children have it. Adults may need to be convinced of its value for themselves.

SOLVING THE CALCIUM PROBLEM. In general, cheese is the main source of calcium for the adults but unless they eat two or three ounces of hard cheese every day, it will not supply as much calcium as is necessary for good heart action, good nerve control, good digestion, and other internal activities. Evaporated milk is not readily accepted, perhaps because Italians do not like milk in cooked foods and the taste of uncooked evaporated milk does not appeal to them. Dried milk is meeting with a better response and as it becomes more plentiful it may help somewhat in solving the milk problem in low-income Italian families.

ITALIAN CHEESES. Italian cheeses have a special appeal for the Italian which American products do not possess, a low-income family preferring a quarter of a pound of Italian cheese to use as flavor rather than a whole pound of American cheese which would cost the same and furnish four times as much nourish-

ment. Since some of these cheeses are being duplicated in this country, the Italian may soon be able to buy his favorites here at a reasonable price. Italians are especially fond of Parmesan, Locatelli, Roman, and ricotta (cottage).

GREEN VEGETABLES. The most popular vegetables among Italians are greens, including broccoli, dandelions, fennel (*finocchio*), green peppers, escarole, and spinach, all of which are found in our markets. In evaluating the food value of Italian meals, it should be kept in mind that green leafy vegetables are served as a main dish two or three times a week and thus the quantity of iron, other minerals, vitamin A and other vitamins contained in one "Italian" serving may be several times the amount in a side dish serving.

Cooking Green Vegetables. The method of preparing greens also is important because about half their good qualities may be lost with improper cooking. The proper method for cooking vegetables is given in Chapter X. Oil is used freely in cooking vegetables in an Italian family. Since oil may combine with calcium and remove it from the system, it may be necessary for mothers who cook the family vegetables in oil to boil some in water for young children.

In addition to greens, eggplants and zucchini are favorites. Italians like them boiled, fried, stuffed, or escalloped. Genoese use potatoes and root vegetables to some extent but Sicilians use few roots and tubers. The protective qualities of their meals would be improved if they could be persuaded to use potatoes and carrots more often.

MEATS AND LEGUMES. The Italian practice of using the organs of animals and other inexpensive cuts of meat may well be encouraged when it is essential to get most food value for the least money. Italians are to be commended, also, for using many kinds of legumes, lentils being most common in the South and fava and kidney beans in the North. Chick peas (*pinto beans*) and dried split peas are also popular.

OLIVE OIL. Olive oil seems so important to an Italian family that usually it is willing to go without other essentials so as to be able to buy oil. The plan suggested in Section I of adding a

small amount of olive oil to salad oil for flavoring may meet with approval, however, and help in making the food dollars cover other foods.

IMPORTANCE OF CEREALS FOR BREAKFAST. It may be necessary to convince some Italian mothers of the importance of a hearty breakfast of whole grain or enriched cereal for children, for breakfast is a meal which often seems unimportant to an Italian mother. The breakfast would be improved if enriched bread were used but the Italian family is partial to Italian bread. Many bake their own bread while others buy it at an Italian bakery. It will be a public health measure to urge the use of enriched flour in both home and bakery if a state law does not make its use compulsory.

Food Preparation

Cheese, legumes, tomatoes, greens, and oil are the foundation of many Italian dishes and tomato sauce is often served on meat, fish, and polenta. Some mothers have persuaded their children to eat cereal by adding tomato sauce to it.

VEGETABLES. Vegetables are cooked in water to which oil has been added, or parboiled and then fried in oil, or simmered in tomato sauce. Sicilians usually fry potatoes whenever they use them but the Genoese method of boiling them with kale, spinach, and other green vegetables is preferable. If cooked in a small amount of water, only until tender, maximum nourishment will be obtained. Escalloped and casserole dishes give variety and also help to eliminate frying as a method of preparation. Since Italians dislike the consistency of cream sauces, it may be unwise to urge them to serve creamed vegetables or cream soups.

SOUPS. Italian minestrone is very nourishing and worthy of much praise for it is usually made with legumes and a variety of fresh vegetables, such as cabbage, onions, peas, and string beans. Its food value would be still further increased if potatoes and carrots were added to it. These vegetables would add much nourishment at very little cost.

DESSERTS. Puddings are seldom used in Italian families, es

pecially milk puddings and custards. Spumoni (ice cream), gelato (brick ice cream), tortoni, and cakes are served on special occasions. The practice of serving fruit or a salad at the end of a meal is far better than the sweet cakes and pastries so common in the United States.

Commendable Points About Italian Food Customs

Foods commonly used by Italians will provide all the essentials for good nutrition if used in right amounts.

Italians use quantities of green and raw vegetables, cheese, and legumes.

They know how to make a small amount of meat go a long way though they may be inclined to use more when it is available. They are familiar with all variety meats.

One-dish meals are popular in low-income families.

In Italy, few sweets are used. It would be well if children could be persuaded to return to this custom.

Points That May Need Attention

It may be necessary to help a family to prepare a food budget which provides all the foods called for in the Food Guide, including milk and cheese for everyone. The best form to fit the family food budget may need emphasis as well as the use of American-made Italian cheeses when available.

The value of potatoes in place of spaghetti two or three times a week needs to be stressed.

Methods of cooking vegetables so as to retain maximum food value may need attention.

It may be desirable to demonstrate the poaching and soft cooking of eggs to replace fried eggs.

The continued use of inexpensive cuts of meat, including beef, lamb, and pork liver, is desirable.

The value of whole grains, such as brown rice, whole wheat

cereals, and enriched flour and cereals may need explaining. It may be desirable to use American salad oil flavored with Italian olive oil in some families.

All children should have fish liver oil.

Do children have too many pennies with which to buy candy?

V. Jewish Food Customs

Religious and Ceremonial Influences

VARIATIONS IN JEWISH FOOD HABITS. Jewish food customs may be strongly influenced by dietary and ceremonial laws and many food practices are associated with holiday customs. All are held as sacred obligations by orthodox Jews but there are degrees of orthodoxy. Some Jews are orthodox only to the extent of buying kosher meat. Others observe the holidays only in a festive way. As Jews become assimilated, more and more they modify their customs in accordance with the practices of those about them.

Jews are eager to give their children every opportunity for good development and good health. They are venturesome and respond readily to suggestions which will benefit their children when convinced that their religious and ceremonial customs will not be violated. The significance of these customs should be understood by anyone who tries to influence Jewish food habits.

Foods eaten by the Jews and the ways in which they combine these foods into meals do not represent the habits of any one racial group but consist of dishes acquired from various countries in which they have lived for any length of time. Among their favorites are Russian borsht, Dutch herring and pickles, Polish stuffed fish (gefüllte fish) and noodles, and German sweet and sour soups.

While Jewish people formerly had strong convictions about the freshness of food and were not inclined to use left-overs, a practice which resulted in the expensive habit of buying in small

quantities, many families are modifying this practice to a very considerable degree.

Religious Injunctions

According to Biblical injunctions, Jewish people may use only the forequarters of animals that chew the cud and have cleft hoofs. This eliminates the pig and all its products, such as bacon, ham, and lard.

KOSHER MEAT. Blood, a vital element, may not be used. An egg with a clot of blood must be discarded, even though the clot may be removed so that no trace of it remains. All meat must be killed by a special official according to a prescribed method which drains from the animal as much blood as possible to render the meat fit for use. Meat thus killed is called kosher meat. Kosher meat is sold only at kosher meat markets. Since kosher meat must not touch any prohibited food, orthodox Jews trade only at kosher stores where strict adherence to dietary laws is observed. No cold storage meat is allowed in an orthodox Jewish home.

After meat is taken home from the meat market, it must be soaked in water one-half hour, covered with salt, placed on a perforated board, and allowed to drain for one hour to remove as much of the remaining blood as possible. At the end of this draining, it is again washed and then it is ready to be cooked.

SUET AND FISH. Suet of oxen, sheep, and goats is forbidden. Only fish that have fins and scales may be used, which eliminates all shell fish.

MEAT AND MILK. Meat and milk or any of its products, such as butter, cream, and cheese, may not be served at the same meal. They must be cooked in separate receptacles. Meat may not be eaten with milk or any of its products. For this reason, kosher meals require two sets of cooking and serving equipment, one for meat meals and the other for milk meals. This injunction needs to be considered in making recommendations about meal plans in orthodox Jewish homes for it may limit the use of milk in soups, creamed dishes, and desserts.

According to Jewish laws, milk may not be taken from three to six hours after meat has been eaten but this law will not be violated if children have at least half of their milk in the middle of the morning and afternoon. Unless this caution is observed, there is danger that milk will be neglected and a calcium deficiency will probably result.

PARVAH. Bread that is eaten with a meat meal must contain no milk or butter while bread served with milk must contain no beef or other fat of animal origin. Bread made to be served with both meat and milk is sold at Jewish bakeries and is called neutral or Parvah. Unless whole wheat bread may be purchased at these bakeries, the orthodox Jew will be deprived of its nourishing qualities.

Jews divide food into three groups, meat and fish, milk and its products, and neutral foods which may be used with either meat or milk. In addition to Parvah, cereals, fruit, and vegetables are also neutral.

HOLIDAYS AND FOOD CUSTOMS. The Jewish Sabbath begins at sundown on Friday and ends at sundown on Saturday. No food may be cooked on this day.

Yom Kippur is the most sacred Jewish holiday, occurring in September or October. This day, otherwise known as the Day of the Atonement, is devoted to prayer and fasting. No food or drink may be taken for twenty-four hours by adults and children over thirteen years of age.

The Passover which comes in the spring commemorates the exodus of the Jews from Egypt. As they could not wait for bread to rise while making this flight for freedom, they ate unleavened bread. In celebration of this important event in their history, the only bread used by them during this eight-day holiday is unleavened bread and is called matzoh. The ingredients entering into matzoh must have had no contact with leavened bread. All other Passover food is rich, much goose and chicken fat being used in its preparation. In orthodox Jewish homes, two complete sets of cooking and serving dishes, in addition to the two sets regularly used during the rest of the year, are necessary for the preparation and serving of food during the Passover season.

Other holidays include the Feast of Purim at which time sweet cakes are a special feature and the Jewish New Year, a feast day in the fullest sense of the word.

Food Value of Jewish Meals

ADEQUATE PROTEIN. Since meat, fish, eggs, cheese, and legumes are used fairly liberally in most Jewish families, there would seem to be little danger of a protein deficiency but the small amount of milk used may result in too little calcium and riboflavin. Even though cheese is used frequently, much of it is cottage or pot cheese which has lost a large per cent of its calcium in its preparation. This lack of milk also may cause a deficiency in vitamin A. Jewish dietary laws would permit the serving of creamed vegetables and cream soups with fish, but restrictions on the use of equipment for both milk and meat may be a limiting factor in serving milk in these ways.

VEGETABLES. Root vegetables and potatoes, used liberally in soups, are, with the exception of potatoes, only fair sources of minerals and vitamins and more dark green leaf vegetables are needed to increase iron and vitamin A. Tomatoes and green peppers, both good sources of ascorbic acid, are used freely but fruit and raw green vegetables may need more emphasis to increase the supply of vitamin C (ascorbic acid), especially in low-income families.

GRAINS. Whole grains, such as oatmeal and barley, predominate among the grain products used in Jewish cooking. They make generous contributions to the iron and vitamins of the B-complex in Jewish meals. Light farina, also used, will add much to the nourishing qualities of meals if enriched varieties are selected.

FATS. Vegetable oils and vegetable shortenings, both permitted by Jewish laws, and chicken fat are commonly used in making cakes and pastries. These pastries are usually richer than is desirable for children and those who are not very active. Since sour cream, used freely on pot cheese and vegetable salads, in

creases the cost of Jewish meals, evaporated milk, clotted with lemon juice, might be acceptable. Sweet butter which is commonly used is more expensive than salt butter.

Buying Habits

The Jewish mother is a thrifty buyer but she has inherited a concern about the freshness of food that may cause her to buy expensive eggs and milk and to avoid canned foods. She also is inclined to patronize delicatessen stores, buying small quantities of such foods as corned beef, smoked and pickled fish, prepared salads, pickles, and relishes. The amount purchased at one time is small and its cost may seem small to her but is much more than she would have paid had the food been cooked at home. Many foods, ready-to-eat when purchased, are poor investments for a low-income family. These little amounts add up to a considerable sum which may prevent the buying of some very essential food. Better buying habits along these lines enable a mother to buy more food for the same amount of money, an essential for health in many families.

Commendable Points About Jewish Food Customs

Jewish meals contain an abundance of protein, chiefly from inexpensive sources—cheese, eggs, fish, legumes, and inexpensive cuts of meat. Liver is used liberally.

Potatoes and prunes, commonly used, are good investments.

Whole grains are usually purchased in preference to refined products.

Points That May Need Attention

Children and adults need the full amount of milk as given in the Food Guide.

It would be desirable to increase the use of dark green leaf

vegetables, such as kale and spinach, to provide vitamin A and iron. Green vegetables are especially important in low-income families.

Vitamin C needs attention. It may be supplied by fresh fruit and raw vegetables which are rich in this factor. Canned and fresh tomatoes also are recommended.

Consider the best return for the money spent for eggs and milk. Cost is no indication of food value.

Delicatessen store food and foods purchased in small quantities anywhere are expensive investments.

Pickles and relishes are expensive for the food value obtained.

Consider the influence of fried and pickled foods on digestion. Are foods too rich for children?

Some Typical Foods of the Jews

Chollah—Very rich white bread

Farfel—Resembles crumbled matzoh; used as cereal, also in puddings during the Passover

Matzoh—Unleavened bread

Strudel—Rich pastry with fruit and nuts rolled into it

Kichel—Flat cakes with sugar on top; popular with some Jews because it is connected with the Sabbath and holidays

Some Food Combinations:

Chopped liver and eggs

Fish and vegetable stew

Fresh raw vegetable salad with sour cream

Meat and vegetable stew

Pot cheese and noodles with sour cream

VI. Polish Food Customs

HOME PRODUCTION COMMON. Poles who live in rural areas produce most of their own food, eating it fresh during the growing season and storing it for winter use—dried, salted, smoked, or pickled. In this country, Poles and Americans of Polish descent

who settle in rural areas raise as much as possible of their own food, particularly vegetables, but when they live in our large cities food must be purchased. If they have limited incomes, then they may need help in planning and preparing meals that provide as many vegetables and all the milk necessary for health protection.

Food Practices

MILK IS WELL LIKED. Polish families are fond of milk and cheese. Children drink fresh milk but adults prefer cheese, buttermilk, clabber, and sour cream. Otherwise children eat the same food as their parents. Because of the cost of milk in this country, it may be used less freely than is desirable. This reduction in milk reduces calcium as well as the vitamin A intake. Sour cream is added to soups, served on vegetables and salads, and used in cooking meats, but sour cream is expensive in this country. If the family is willing to use evaporated milk made sour with lemon juice or vinegar, this substitute will provide calcium and vitamin A. Children need fish liver oil to supply both vitamin A and vitamin D.

VEGETABLES. *Potatoes.* Because of limited cooking equipment and the long hours of work in connection with farming, soups and other one-dish meals are popular in rural areas in Poland. These soups carry quantities of potatoes as well as beets, carrots, and other vegetables. Potatoes served with sour cream, garnished with green leaves of dill or parsley, is a Polish national dish during spring and summer.

Other Vegetables. Other vegetables in common use in Polish families are broccoli, green peppers, kale, sorrel, spinach, and string beans. Sorrel soup is very popular in the spring. It is made with meat stock and served with slices of cooked eggs as a garnish. Doubtless Polish families in rural areas in this country make use of wild sorrel which is so common in the fields. Other dark green leaves are not used to any extent but, since beets and turnips are raised in Poland, it should not be difficult for Polish families to appreciate the value of beet and turnip tops as greens.

Carrot tops, chopped and sprinkled on soups, creamed potatoes, boiled carrots, summer squash, and salads might be stressed.

Lettuce and cucumbers, served with vinegar or bacon fat, are especially liked by Poles but both become luxuries when purchased in our city markets at most seasons of the year. Raw cabbage, raw carrots, and raw green peppers make good substitutes.

VITAMIN C (ASCORBIC ACID). Though a fair amount of fruit is used in Poland, its cost limits its use by low-income families in the United States. Adults will get a fair amount of ascorbic acid if properly cooked potatoes are eaten two or three times daily with generous amounts of tomatoes and raw cabbage, but precautions are necessary to preserve maximum amounts of ascorbic acid in the preparation of vegetables. Vegetables are at their best when cooked just long enough to become tender. Sauerkraut, well liked by the Poles, is a fair source of ascorbic acid. One and one-third-cupfuls supply about 30 mg. of this factor, or a little less than half the amount needed by an adult every day.

Poles frequently make fruit soups by combining the pulp of such fruits as pears or plums with sweet or sour cream. These fruits are low in vitamin C and are not to be relied on for this factor. Some citrus fruit should be used in addition to the other sources of ascorbic acid, especially by children.

LITTLE MEAT. In Polish homes, a small amount of inexpensive meat is made to go a long way in flavoring soups, but meat is usually considered a luxury and reserved for Sunday dinners. Geese, duck, pork, poultry, sausages, pig's knuckles, and internal organs, such as heart, kidneys, lungs, tongue, and tripe, are all well liked.

They have a dish called "flaki" which is made by cooking tripe and vegetables together for several hours. It is served with barley *kasza* and dumplings. They are also very fond of *golabki* which is ground meat rolled and tied in cabbage leaves and cooked in tomato sauce. Another popular dish is called *pierozki*. This is made of small pieces of dough filled with chopped meat or cottage cheese and cooked in water.

Poles are so accustomed to the use of legumes, eggs, cottage cheese, and fish in all forms—fresh, salted, and pickled—they

should have no difficulty in preparing hearty meals containing an abundance of protein. Cottage cheese is often substituted for meat. When served with noodles and seasoned with crisp bacon, the resulting dish is called *kluski*.

WHOLE GRAINS ABUNDANT. Poles use much sour rye bread and *kasza*. Buckwheat and millet grits are often served with bacon fat as a cereal. Barley grits and other kinds of *kasza* are served with soups. In low-income families, *kasza* is often served by itself as a supper dish. Oats and rice are also popular.

Since refined grain products are seldom used in Poland, the total amount of iron and vitamins of the B-complex should be adequate for health protection but if our white bread, white rolls, cornflakes, sweet cakes, and pastries made with non-enriched flour are substituted by the family for too large a portion of the whole grains formerly used in Poland, the intake of iron and vitamins of the B-complex may be lower than is desirable, especially if green leaf vegetables also are neglected. Then potatoes, legumes, and dark green leaf vegetables as well as whole grains need to be emphasized to provide an adequate amount of these factors.

LITTLE BUTTER AND SUGAR USED. Poles use such a wide variety of fats and oils that butter and margarine shortages should be of little inconvenience to them. Lard, bacon fat, poultry fat, suet, and oils from seeds, such as hemp, flax, and sunflower are common. If these oils are unobtainable or expensive, our salad oils should be acceptable as substitutes.

Polish sweets consist chiefly of honey and jam made from fruits grown on their land. Among common desserts are: *nalesniki*, made by spreading jelly or cottage cheese over very thin pancakes which are rolled like a jelly roll; *kolachki*, a cake filled with sweetened cottage cheese; and *oladki*, a small yeast pancake served with honey or fruit preserves.

It is unfortunate that Polish children learn to like candy when they come to America. In fact, many families coming here from other countries adopt two of our outstanding undesirable habits, the use of white bread and too many sweets.

SPICES AND SEASONINGS. Seasonings which give a characteristic

touch to Polish foods are many and varied. Among those used are mushrooms for flavoring soups, seeds for pastries, and dill for pickles, while saffron and mace are used for many purposes.

Commendable Points About Polish Food Customs

Poles are to be complimented on their fondness for milk, cheese, and vegetables and on their use of inexpensive cuts of meat for maximum food value at least cost.

Their wide use of legumes and whole grains in their own country is very desirable.

The use of small amounts of sweets is an excellent habit.

Points That May Need Attention

Low-income families of Polish descent may need assistance in planning their food budgets so that all necessary foods will be included in the right proportions.

Poles may well be encouraged to continue customs which are common in Poland.

An adequate amount of milk is essential, with the form used adjusted to their food budget. Evaporated milk, soured with lemon juice or vinegar, makes a good substitute for sour cream.

The addition of more fresh fruit, tomatoes and raw vegetables would improve their meals nutritionally. Potatoes, cabbage, sauerkraut, beets, and onions are popular foods which can be used freely. The proper cooking of vegetables, especially for children, needs to be emphasized.

Whole grain bread is an excellent investment. Oatmeal, an acceptable cereal, may be urged as a breakfast food for children. Cornflakes, a food that may not be used in large enough amounts to provide adequate nourishment, should be reserved for special occasions.

Liver in place of some of the sausage and pork used in Polish families will increase vitamin A and the iron content of their

meals. Low-income families will do well to continue the use of inexpensive cuts of meat, especially glandular organs, and legumes.

The Polish habit of using little sugar should be encouraged.

Typical Dishes of the Poles

Polish Borsch—Clear beet soup made of meat stock and one or two dried mushrooms; sour cream often added; sometimes served with a dish of *kasza* or mashed potatoes.

Kasza—Ground whole buckwheat, millet, barley, or oats; served with milk or chopped crisp bacon or mushroom sauce.

Bigos—sliced pork sausage cooked with sauerkraut and bacon; can be kept for several days and reheated.

Pierogi—A small loaf of brown yeast bread filled with peas and beans or crisp bacon and onions chopped together.

Bulki—sweetened or unsweetened yeast bread made of white flour with milk and eggs.

Chleb—Rye or whole wheat brown bread made with yeast, often with the addition of sour cream.

Struclę—National Christmas cake; a sweet yeast wheat bread with a half inch filling of poppy seeds which have been soaked in water and mixed with almonds, nuts, and sugar.

VII. Puerto Rican Food Customs

Buying Habits

IN PUERTO RICO. Large plantations in Puerto Rico on which coffee, sugar, and tobacco are raised furnish employment for most of the inhabitants of the island. They work for very low wages and have very little money to spend for food, a limited variety from which to make selections, no refrigeration, all of which force them to buy in small amounts—perhaps an egg or two and a few slices of bread at a time. In any event, the islanders are so impressed with the importance of freshness in food that many of them buy from meal to meal.

IN THE UNITED STATES. When Puerto Ricans from this low-income group come to the United States, they are handicapped because so many foods in our markets are strange to them. They do not know how to arrange them in meals or how to prepare them. Usually they fear to experiment and cling to the only familiar foods they can find. This may result in poorly planned meals, deficient in many of the factors essential for good nutrition. In most Puerto Rican families, there is need for constructive suggestions about meal planning for health protection and buying food so as to get maximum value at least cost.

Foods Used in Puerto Rico

FOUR PROMINENT FOODS. Four foods form the basis of many of the meals of Puerto Ricans—rice, legumes, plantain (a fruit resembling a green banana), and their native tubers or root vegetables. The chief of these are chayote, cassava, malangas, yams, and yautias. These vegetables resemble our white and sweetpotatoes in appearance and texture.

Stew is a common method of preparing rice and beans while lard or inexpensive olive oil is added to the stew to make it more palatable. Coloring matter from annato is dissolved in the fat, giving it an interesting appearance.

Rice and beans may form the main meal of the day several times a week. A sauce called refrita, made from green peppers, okra, garlic, and onions cooked with salt pork or ham fat, is sometimes served with beans or rice, or a combination of the two. Dried beans may be cooked with tomatoes, onions, and any other seasoning the family can afford. Variety is obtained by using various kinds of legumes—black, Lima, navy, pinto, and red beans, also chick peas.

EXPENSIVE FOODS. The island has only a small amount of eggs, cheese, butter, evaporated and dried milk, and meat. Those who live along the coast can get fresh fish but farther inland, only dried and salted fish are obtainable. Every town has its slaughter house where those who can afford meat go each day to buy a small piece for their bean and rice stew. Families who can afford

to buy an egg or two add beaten egg to coffee sweetened with molasses to use as in-between meal snacks. Meals are served very irregularly, the entire family seldom sitting down at the table at the same time.

INFLUENCE OF A WARM CLIMATE. Because of a warm climate and lack of refrigeration, milk must be used soon after it is produced, fish soon after it comes from the water, and meat soon after it is slaughtered. Puerto Ricans have been so impressed with this need for caution in a warm climate that it influences their way of shopping in the United States. They not only buy by the meal and just before they want to prepare the food, but are inclined to select more expensive milk, eggs, and meat than necessary, thinking the price will be a guarantee of safety.

VEGETABLES AND FRUITS. Very few green vegetables are grown in Puerto Rico, though green peppers and okra are common. In addition to plantain, the most common fruits are bananas, oranges, and pineapples but, since these fruits are exported, very little reaches the table of the average Puerto Rican, especially those with low incomes.

VARIETY IN GRAIN PRODUCTS. In addition to polished rice, wheat, oatmeal, and cornmeal are being introduced into Puerto Rican markets but chiefly in cities and even there the people take to them very slowly. Bread is baked in cities but because of lack of transportation very little of it reaches the laborer on the plantation. For this reason, many families who come to our cities may not be familiar with it, especially whole wheat.

SUGAR AND COFFEE. White sugar is exported, but this is to the advantage of the Puerto Rican because he is forced to use molasses, an iron-rich by-product of the sugar industry. The use of black coffee at every meal, however, is as undesirable as the use of molasses is commendable.

Adjustments in the United States

SUPPLEMENTING PUERTO RICAN MEALS WITH MILK. Since most of the Puerto Ricans have little money to spend for food when they come to the United States, every dollar should be

used so as to get maximum nourishment. Beans, rice, plantain, and tubers need to be supplemented with some milk to provide calcium, protein to supplement the bean protein, and vitamin A and riboflavin. No food gives a better return for the money spent for it than milk. It is a necessity, not a luxury. Some of the money spent for coffee might be spent for milk. As Puerto Ricans are inclined to buy an expensive form of milk, they may need help in selecting one with a price that fits their food budget. Since both evaporated and dried milk are sold in Puerto Rico, these ought to be familiar. However, few families have ever used them, and it may be necessary to demonstrate ways in which these forms of milk may be used, as in creamed vegetables, cream soups, and milk puddings.

VEGETABLES AND FRUIT. Equally essential are nourishing vegetables. Puerto Rican vegetables are sold only in a few shops in our largest cities and are usually expensive. More nourishment would be obtained for the same amount of money if it were used to buy potatoes, carrots, cabbage, and tomatoes and such green leaf vegetables as beet tops, kale, and spinach.

Families may need to be shown how to prepare them and should be encouraged to eat some cabbage and carrots uncooked. The selection of cabbage in place of lettuce is very important because of the greater nourishment gained from the former for the same amount of money. Canned tomatoes are as safe as fresh tomatoes, just as nourishing, and usually cost less. Prunes might be emphasized as a source of iron. Fresh oranges and grapefruit should be encouraged when the family budget will stand the expense. Canned grapefruit juice is usually cheaper than fresh grapefruit. Some citrus fruit is especially important for children.

THE MAIN DISH. Legumes which the Puerto Ricans use so freely may well be continued since no food is a better investment as a source of iron, protein, and vitamins of the B-complex. As the family can afford them, other inexpensive sources of protein—cottage cheese, canned pink salmon, inexpensive fresh fish, liver, and other organ meats—may be added for variety. Eggs, prepared as a part of the meal instead of a snack between meals, will add variety as well as additional protein and iron.

BROWN RICE. Since rice is used in such large amounts, it should be emphasized that brown rice in place of white rice increases iron and vitamins of the B-complex. A gradual introduction of whole wheat both as bread and as cereal, replacing some of the rice, will also add to the food value of Puerto Rican meals. Any white bread used should be enriched if it is sold in the locality.

OTHER FOODS. Fortified margarine in place of some of the lard will add vitamin A. Meanwhile the annatto coloring need not be discouraged for it is a good source of vitamin A as well as a favorite method of making food look appetizing. Molasses is already familiar to Puerto Ricans and its use should be encouraged. Every child needs cod liver, or other fish liver, oil to take the place of the sunshine which furnished vitamin D in Puerto Rico. This also will add vitamin A.

Milk, beans, brown rice, potatoes, cabbage, carrots, tomatoes, fortified margarine, used in proper amounts and supplemented with cod liver oil for children, can provide all the factors necessary for good nutrition but equipment must be such that foods can be properly cooked.

Commendable Points About Puerto Rican Food Customs

The Puerto Rican uses one of the most nourishing, most concentrated foods, the legumes—also one of the least expensive.

When he has meat, he makes a little go a long way in flavoring his stew and vegetables.

Molasses is one of the best forms of sweet.

Points That May Need Attention

The low-income Puerto Rican needs help in planning his food budget so as to include essentials for health protection.

He may need help in selecting the form of milk best suited to his income. Demonstrations as to ways of using it may be necessary.

It may be necessary to emphasize the importance of dark green leaf vegetables with ways of cooking and serving them.

Cottage cheese, canned pink salmon, and such organ meats as liver are better investments than ham butts and sausages.

It may be necessary to urge the use of brown rice instead of white; also whole grain and enriched bread and cereals.

The substitution of butter or fortified margarine in place of some of the lard and olive oil would be desirable.

It should be explained that the cost of a food does not indicate food value or its safety from the standpoint of freshness.

Buying in as large amounts as possible (within reasonable limits) is cheaper than buying in small quantities.

It is desirable to plan meals for two or three days in advance and to buy accordingly.

Typical Dishes of the Puerto Ricans

Beans and rice served with refrita

Beans or peas and refrita cooked together and served on rice with melted fat colored with annato

Beef or pork, cut in small pieces, cooked with potatoes, and served with refrita

Salad of salt cod, hard cooked eggs, and raw onions, served with oil and vinegar

Salad of cooked tubers and onion, served with oil and vinegar

Mafongo—Mashed plantain mixed with chopped onion

VIII. Southern Negro Food Customs

Our Southern Negroes are not bound by traditional food customs and soon adapt their food practices to market conditions in the community to which they move. They are fond of all essential foods and when they have the money they have enough to eat even though the foods are not always well planned.

Tendencies in Food Habits

MILK IS OFTEN NEGLECTED. Negroes like both buttermilk and fresh milk and when they have the money, they use one or the other rather generously. If for economical reasons they have to choose between milk and meat, however, milk is often sacrificed. If buttermilk made from skimmed milk is used to the exclusion of whole milk, and if dark green leaf vegetables are neglected, there is danger of too little vitamin A. The low-income family will not object to evaporated milk but may need help in making a wise selection.

FONDNESS FOR VEGETABLES AND FRUITS. Negroes like all kinds of vegetables but when incomes are limited, the quantity of vegetables purchased is not always adequate for health protection. They have a special fondness for mustard and turnip greens, kale, and cabbage, all of which are high in minerals and vitamins. In addition, the Negro should be encouraged to eat more raw vegetables, especially during the winter months. Onions, green peppers, cabbage, lettuce, cucumbers, and tomatoes are sometimes used in summer, but seldom in winter. Carrots, available throughout the year, might be suggested in place of cucumbers which are usually expensive in city markets. Canned tomatoes are as nourishing as, and usually cheaper than, fresh tomatoes. Cabbage is a good all-year vegetable which might be used raw both in winter and summer. Yellow turnips are a good winter vegetable. Lettuce is usually expensive in comparison with its food value and young, tender leaves of spinach might be suggested to take its place. Spinach will afford much more nourishment, especially iron, vitamin A, and ascorbic acid.

Fruit, plentiful in all warm climates, is purchased whenever the family can afford it, but instead of being used to make meals interesting, it is unfortunately eaten at any time of the day. This habit may interfere with the amount of food eaten at mealtime, thus cutting down the amount of other equally essential foods.

"Potlikker." The practice of cooking greens too long is disappearing among Southern Negroes, except in individual instances, but the undesirable habit of cooking them with salt pork, ham, or bacon still persists. While this method has the advantage of

giving flavor to the "potlikker" so that it is used and enjoyed as a part of the meal, thus saving all the minerals and vitamins which have dissolved and are in the water, it may make greens cooked in this way undesirable for small children and many adults whose digestion may be retarded by too much fat.

LEGUMES ARE POPULAR. Legumes, rich in protein, iron, and vitamins of the B-complex, play a prominent part in the meals of all Negroes. A wide variety in our markets makes it possible for the Southern Negro to select his favorite navy beans and black-eyed peas. Cooking rice and black-eyed peas together makes a popular dish called Hopping John.

HOT BREADS. Since hot breads, hominy, and hominy grits, so popular in most of the Southern States, and white rice extensively used in South Carolina, Mississippi, Louisiana, and Texas where it is grown, are all low in food value, more whole grains are needed to provide iron and vitamins of the B-complex. Five of the Southern states already have passed laws requiring the enrichment of degermed cornmeal and grits, and it is hoped that others will follow, thereby automatically providing more nourishment. Enriched flour should be used whenever available.

CHICKEN AND MEATS. The liberal use of meat and fish by Negroes should supply them with adequate protein for they usually have one or the other of these protein-rich foods at least twice daily. A too liberal use of chicken, however, which is comparatively expensive when purchased in city markets, often results in a reduction of the amount of milk, vegetables, and fruit used in low-income families. A Negro who has been in the habit of raising his own chickens still wants them freshly killed when he moves to a city and often buys them in a kosher market, and frequently pays an extra price for them.

FISH. Negroes enjoy fishing and use quantities of fish when living in sections of the country where they can catch their own or buy it at a low price. They still use fish at least once a week when they have to buy it at city market prices and would not object to eating it oftener if meat were not obtainable. Their favorite fish are mullets, spots, trout, croakers, perch, and butter-fish. Salt cod is popular in fish cakes, salmon in salmon patties.

and salt herring and mackerel are considered delicacies by Southern Negroes who often use them for breakfast instead of a whole grain cereal. The cereal should be emphasized for the children, even though the family can afford the fish for its adults.

Eggs. Eggs are used freely and in a variety of ways, but since the Negro is accustomed to raising hens, he appreciates fresh eggs and is likely to pay higher prices than is necessary.

FATS OFTEN USED TOO LIBERALLY. One of the most questionable food customs of our Southern Negroes is the large amount of fat used. In addition to salt pork and bacon which are usually cooked with vegetables, the fat that cooks from pork is often thickened with flour, sometimes seasoned with molasses, and used as gravy. Much lard is used in baking and many foods are fried. Negroes are very fond of butter and are quite likely to pay a high price for it. This abundant use of fat in these various ways may take calcium out of the system, causing many complications.

COD LIVER OIL NEEDED. Severe rachitic conditions among Negro babies are in part influenced, no doubt, by the food of the mother during pregnancy and lactation, in part by the dark skin which interferes with the protective influence of the sunshine. Every baby needs to be protected against rickets through the use of fish liver oil as well as milk.

SWEETS. Negroes are very fond of cakes, cookies, pastries, and sweet breads, many of which are made at home, others bought at the bakery. Either way they tend to displace other foods that carry a large share of the health-protective factors and take too large a portion of the low-income food budget. When living in parts of the country where they can be purchased, Southern Negroes use sorghum and molasses, both very good sweets because of the minerals they contain, but when the Negro moves to a city, he is quite likely to select corn sirup which has a very low mineral content.

Commendable Points About Negro Food Customs

The Negro has no special food custom which intereferes with good nutrition, except possibly his too liberal use of fat.

His fondness for milk, vegetables, especially green leaves, fruit, eggs, legumes, fish, and whole grains is very commendable.

His cosmopolitan tastes enable him to adjust to market conditions in any community.

The use of water in which vegetables have been boiled is a custom that might well be copied by all families, provided fat has not been cooked with the vegetable.

Molasses and sorghum are good sweets to be encouraged when obtainable.

Points That May Need Attention

The Negro needs help in planning a food budget that will give proper emphasis to each food in the Food Guide.

If buttermilk (made from skimmed milk) is used to the exclusion of whole milk, it must be supplemented with sources of vitamin A, such as liver, dark green leaf vegetables, carrots, and fish liver oil.

Proper cooking of vegetables, especially those to be given to children, needs attention.

Canned tomatoes are often cheaper than fresh tomatoes.

The use of raw vegetables may need urging.

The time at which fruit should be eaten may need attention.

Eggs should be selected according to the use to be made of them, not according to price.

With regard to the meat item in the food budget, these points may need emphasis:

Meat not more than once daily

The use of cheese, fish, and legumes as meat alternatives

The use of economical cuts of meat, such as beef, pork, and lamb liver and stew meat

Less salt pork, ham, and bacon

The high cost of chicken and bacon and their needlessly liberal use in low-income families

Meals of Negroes will be improved with a wider use of whole grain and enriched bread and cereals, especially oatmeal and whole wheat or enriched bread.

Sweets and baked goods should not be used too freely.

Fried foods should not be given to children and adults with slow digestion.

Reference

National Research Council, Committee on Food Habits: Reports on the Food Habits of Selected American Groups—Italian Americans, Polish Americans, Hungarian Americans, Czechoslovakian Americans, Bulgarian Americans, and Negro Americans. Washington, D. C., National Research Council, Committee on Food Habits, 1942-1945.

CHAPTER VII

DIETS FOR SPECIAL CONDITIONS

Food seems to assume new significance when used to create new life, as in pregnancy and lactation; to rebuild wasted tissues, as in convalescence; or to correct dangerous conditions, as in underweight and overweight.

If the same careful respect and attention which are given to food during sickness were shown in planning meals during health, the number of illnesses and the need for special diets would, no doubt, be reduced.

Food should be planned EVERY DAY with health protection and the prevention of disease in mind.

I. Food During Pregnancy and Lactation

THE PERFECT BABY. The perfect baby, the dream of every expectant mother, may be less a matter of chance in the future than it has been in the past, for both clinical observations and laboratory research are showing the mother how to improve the health and vigor of her baby through the food she eats during pregnancy and lactation. These investigations also hold out hope of reducing mortality and illness among infants through the food of mothers during the prenatal and nursing periods.

What Research Studies Show

Dr. J. H. Ebbs of the University of Toronto Medical School and Mrs. B. S. Burke of the Department of Child Hygiene in the School of Public Health, Harvard University, are prominent among those whose work is shaping recommendations with re-

gard to the best foods for pregnant and nursing women. Both of these investigators have made extensive studies in which they correlated the nutritive value of the diets of pregnant women with conditions observed during the progress of pregnancy and at delivery and with conditions of the babies at birth and during the first six months of life. The main facts brought out by their observations are summarized as follows:

None of the women who had good diets had eclampsia while it occurred in about half of the mothers on poor diets. None of a group of eighty-six women, each of whom had 100 grams of protein daily, had toxemia.

Most of the babies whose physical condition was rated as superior at birth were born of mothers who had better than fair diets. Of 216 women in one phase of the Harvard study, only one mother who had a good diet gave birth to a baby in poor physical condition. Babies frequently were poorly formed when the mother had less than 75 grams of protein a day.

All premature babies, all stillbirths, all miscarriages, all babies with marked congenital defects, and all babies that died during the first six months after birth, were born of mothers with poor diets.

Women who had poor diets had smaller babies, yet they had more major complications at delivery than those who had good diets. Babies born of mothers who had poor diets were more often ill during the first six months of life.

In the Toronto study, it was noted that mothers with good diets were less worried about trivial details, were more interested in personal appearance, and had a happy mental attitude toward life in general.

The need for improving diets during pregnancy is further strikingly shown in a study of the food eaten by approximately 500 pregnant women in Philadelphia in which only ten of the diets in this whole group were rated as good and over half were definitely deficient in one or more factors. Factors most commonly deficient were protein, iron, thiamine, riboflavin, and ascorbic acid (vitamin C).

Each Factor Vitally Needed

GOOD PHYSICAL CONDITION. As shown by the studies of Ebbs and Burke, a baby has a better chance of coming into the world alive, perfectly shaped, and in good physical condition if his

mother has from 85 to 100 grams of protein daily during the prenatal period. Conditions will be most favorable for a continuation of good development if she has 100 grams daily while nursing him.

HIGH VITALITY. According to work done by Professor H. C. Sherman of Columbia University, large amounts of calcium, riboflavin, and vitamin A during pregnancy and lactation are necessary to produce a high degree of vitality and resistance in the offspring. Since milk is the most reliable source of calcium and the most practical source of riboflavin, he recommends a quart daily for every pregnant woman and one and one-half quarts for the nursing mother. Even though milk supplies a fairly generous amount of vitamin A, however, a larger amount produces greater vitality and the use of fish liver oil, or its vitamin equivalent, is also recommended. Another reason for a liberal supply of vitamin A during the prenatal period is that it helps to provide breast milk for the baby.

WELL-SHAPED BONES AND TEETH. Much research work has been done on the prevention of tooth decay in children and the general opinion is that it must begin while the tooth buds are forming. Solidly built teeth are dependent on calcium and phosphorus which milk will supply, and vitamin D, an essential ally, which will be furnished if fish liver oil, or its equivalent, is given. In addition to these building factors, vitamin C (ascorbic acid) has an important rôle in protecting the temporary tooth buds formed before the child is born and the permanent tooth buds which are formed during the first year after birth. It also helps to protect the teeth of the mother and strengthens all connective tissues. Pregnant women, nursing mothers, and babies, then, need an ample amount of citrus fruit and tomatoes to provide vitamin C for this protection.

ANEMIA OF PREGNANCY. A liberal amount of iron is necessary to prevent anemia during pregnancy and to help in all oxidation processes which proceed at a high level during this period, and the nursing mother needs a generous amount to rebuild hemoglobin after delivery as well as to supply the baby with the amount he needs.

Meals of both pregnant and nursing women should contain the best sources of iron available—whole grain and enriched bread and cereals, liver, kidneys, muscle meat, eggs, dark green leaf vegetables, prunes, potatoes, and other iron-rich foods.

STIMULATION FOR THE DIGESTIVE TRACT. There is considerable evidence that thiamine may help to control nausea during pregnancy and that all vitamins of the B-complex are necessary to stimulate the appetite, aid digestion, promote good elimination, and help to produce good muscle tone and good circulation in the baby. Vitamins of the B-complex also help to stimulate the flow of the mother's milk during the nursing period.

Potatoes, baked or boiled in their jackets, whole grain and enriched cereal products, and the water in which tasty vegetables have been boiled are recommended as good sources of vitamins of the B-complex, and legumes are suggested when they can be taken without distress.

WEIGHT AND ENERGY. Unless a pregnant woman is underweight, her calories should not be increased during the first four or five months of pregnancy. The amount of bread, cereals, and fats she has been in the habit of eating should be reduced to permit a more generous use of milk, fruit, and vegetables. Then, as the need for energy increases during the latter part of pregnancy, bread and cereals may be increased to an amount that will keep weight at a desirable level.

A malnourished mother who wants a well-nourished baby will have to eat more than a woman in good physical condition. Her food must rebuild her own tissues and create new tissues for the development of the child. Contrary to a common belief, it is now known that the baby will not grow indefinitely at the expense of the mother's tissues. The pregnant woman who is underweight may find it necessary to eat as much food as a nursing mother.

The nursing mother will need from 400 to 600 calories more than she did during the latter part of pregnancy because producing milk is work which requires energy. Part of these additional calories will be supplied in the extra half quart of milk

while larger amounts of fruits, vegetables, and whole grain and enriched bread and cereals needed during this period will supply the remainder.

Nausea During Early Pregnancy

ITS CONTROL. In each case of nausea, the physician will, of course, be consulted and he will recommend the treatment in any individual instance. The control of nausea during pregnancy is still a problem. In some instances, physicians find reasonable success with high protein and thiamine. Although the relation between thiamine and the relief of nausea has not been fully established, whole grain or enriched bread and cereals and generous amounts of green leaf vegetables, rich sources of this factor, should be included in the meals of all pregnant women as a part of well-planned meals.

Many women find it helpful to chew a dry cracker slowly before lifting the head from the pillow in the morning. Simple lunches of crisp toast, gruels, and fruit juices taken in the middle of the morning and afternoon, or before retiring, are sometimes effective. Food in general may be better tolerated when taken in small amounts at intervals of three or four hours instead of in larger amounts at three regular meals. The Maternity Center Association of New York City* suggests the use of orange juice at each meal or a piece of lemon dipped in sugar taken before breakfast. This same organization also suggests that a breakfast of baked potato with a small amount of butter and a glass of milk may be helpful.

Each mother may find certain foods especially annoying, others beneficial. In general, it is suggested that the diet consist of simple, easily digested foods with liberal amounts of fruits and vegetables, little fat, and fairly liberal amounts of carbohydrates to overcome nausea during the first few weeks of pregnancy. Care is necessary to avoid overtaxing the digestive system.

* Maternity Center Association: *Maternity Handbook*. 2d ed. New York, G. P. Putnam's Sons, 1945.

*Food During Labor**

Food during labor is very definitely a medical as well as an individual problem but it has been suggested to the author that nurses throughout the country will be interested in knowing some of the practices. These paragraphs are inserted in response to such a request.

ENERGY REQUIRED. In the early part of the first stage of labor, a woman needs to eat to keep up her strength. At the same time, food should provide a liberal amount of energy. This is particularly important during prolonged labor but only easily digested foods should be taken, such as milk, milk drinks, milk toast, whole grain or enriched bread and cereals, boiled or baked potato, cream vegetable soups, custards, cornstarch pudding, vegetable juice cocktails, tomato juice, and fruits. Fat and all fried foods should be avoided. Some physicians advise against milk, milk products, and all semi-solid foods as soon as labor begins.

ACTIVE LABOR. During the early part of active labor, there seems to be a general recommendation that the need for energy may be safely provided through small amounts of foods that leave no residue in the stomach. This eliminates milk and fruit pulp as well as all other solid foods. Ample fluids are essential, however, to avoid dehydration. Possible fluids that may be given are strained tomato juice, strained fruit juice, clear broth, and tea and coffee; sometimes carbonated beverages like ginger ale are allowed. Corn sirup is sometimes added to tomato and fruit juice and sugar to tea and coffee to provide additional energy, but these beverages should not be very sweet. Small amounts of food given frequently are recommended rather than larger amounts at less frequent intervals.

Tomato and fruit juice, because of their vitamin C and energy, are preferable to broth and tea and coffee but the latter may be valued for variety. While clear broth has little nourishment, it

* The Child, May, 1945, contained an article on Food During Labor and the Puerperal State, prepared by the Nutrition Unit of the U. S. Children's Bureau, with the cooperation of the Bureau's Obstetrical Consultant. Reprints may be obtained from the Government Printing Office.

may be useful as a stimulant in cases of exhaustion and its warmth may be comforting.

Physicians stress the importance of giving no food for at least two to three hours before the anticipated time of delivery and if an anesthetic is to be administered, the same precautions about the use of food should be observed as in any instance in which an anesthetic is used.

Food After Delivery

REGAINING STRENGTH. Regaining strength as rapidly as possible after the period of labor is very important, both for the sake of the mother and the baby. This is especially important if the baby is to be breast-fed.

If no anesthetic has been used, if there are no complications, if the mother is not suffering from nausea, she is usually given something to drink soon after the baby is born. This may be hot broth, followed by some form of liquid nourishment at frequent intervals throughout the day. This may be cereal gruel, puréed vegetables—thinned with water in which the vegetable has been boiled or with plain water—tomato juice or fruit juice and sometimes milk, though there may be exceptions in the case of milk.

After the first day or two, unless a special diet is recommended for some reason, the mother is usually allowed any food suitable for a patient in bed, with liberal amounts of fluid, such as water and fruit and tomato juice. Suggestions for liquid and soft diets are given in Section VI of this chapter.

Food Recommended Daily During Pregnancy and Lactation

Foods that will provide the most favorable conditions for the development of a healthy, vigorous baby before birth and during the time he is dependent on his mother for food are summarized in the list that follows.

As Mrs. B. S. Burke suggests, it is better to tell a mother what she needs to produce a perfect baby and let her decide how much of it she can afford to buy. Special emphasis, however, should be placed on milk, fruit, vegetables, and whole grain or enriched products as her first choices.

<i>Milk</i>	1 quart daily for pregnant women and nursing mothers while they are still in bed; 1½ quarts for nursing mothers after they are up and about; they may have more if desired.
<i>Cod liver oil</i>	1 or 2 tsp. or its vitamin equivalent
<i>Eggs</i>	1
<i>Meat and Fish</i>	4 or 5 oz. of either meat or fish; liver or kidneys at least once a week; a second serving of meat or cheese or legumes for lactating women.
<i>Vegetables</i>	2 or 3 servings, including: ½ c. dark green leaf vegetable 1 medium sized potato; more for the lactating woman if she wishes. ½ c. other vegetable
<i>Fruit</i>	2 or more servings, including 6 to 8 oz. citrus fruit or tomato, ½ medium cantaloupe, or a generous serving of papaya; some cooked fruit in addition; other fruit as desired.
<i>Bread and Cereals</i>	One or both at each meal or as much as is needed to keep weight at a desirable level; nursing mothers may need extra bread between meals.
<i>Fats</i>	Some fat is desirable but it should not be used so freely as to cause an increase in weight. Select butter or margarine because of their vitamin A content.
<i>Sweets</i>	Small amounts only; fruits should supply sugar. Molasses is a good sweet.
<i>Iodized salt</i>	Since the thyroid gland is very active during pregnancy and lactation, it would be well to use iodized salt.

These foods which are recommended for pregnant and nursing women will supply the amounts of the various food factors recommended by the Food and Nutrition Committee of the National Research Council during pregnancy and lactation which are as shown in Table 14:

TABLE 14
RECOMMENDED DIETARY ALLOWANCES FOR WOMEN*

	<i>Normal Moderately Active</i>	<i>Pregnancy (latter half)</i>	<i>Lactation</i>
Calories	2500.0	2500.0	3000.0
Protein, gm.	60.0	85.0	100.0
Calcium, gm.	0.8	1.5	2.0
Iron, mg.	12.0	15.0	15.0
Vitamin A, I.U.	5000.0	6000.0	8000.0
Thiamine, mg.	1.2	1.8	2.0
Riboflavin, mg.	1.6	2.5	3.0
Niacin, mg.	12.0	18.0	20.0
Ascorbic acid, mg.	70.0	100.0	150.0
Vitamin D, I.U.	†	400 to 800	400 to 800

* From the Recommendations of the National Research Council.

† For persons who have no opportunity for exposure to clear sunshine and for elderly persons, the ingestion of a small amount of vitamin D may be desirable. Other adults probably have little need for taking vitamin D other than what they get through sunshine.

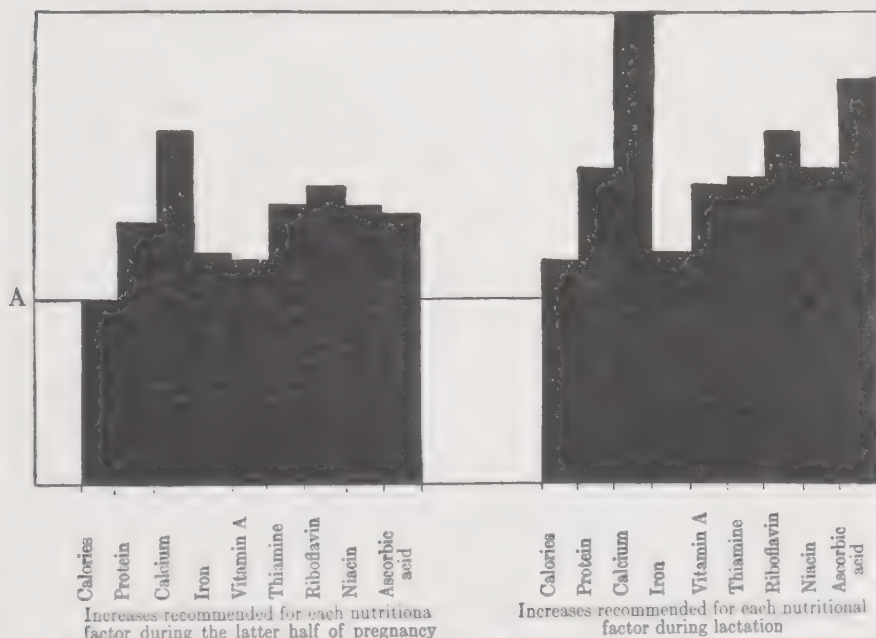


Fig. 24.—Comparison of recommended allowances during pregnancy and lactation with requirements for a moderately active woman under normal conditions.

Figure 24 represents graphically the increases in each nutrition factor which the food of expectant and nursing mothers must contain if it is to meet the demands of growth so as to protect the growing organism and produce a perfect baby. The columns below Line A represent the amount of each factor needed under normal conditions, while the columns above A represent the necessary increases of the various factors during pregnancy and lactation.

The Meal Pattern

USING THE FAMILY MEAL PATTERN. The food needs of pregnant and nursing women vary from those of the rest of the family chiefly in the quantity of milk, fruit, and vegetables needed, but the differences are not marked enough to require the preparation of special meals. It may be necessary, however, to plan the family meals to include, more frequently than usual, green vegetables, liver, other iron-rich foods, and foods that are high in vitamins of the B-complex.

LUNCHES. Pregnant and nursing mothers may feel less selfish about taking foods which are not served to the whole family if they take them between meals. An extra egg in a glass of milk can be taken in the middle of the morning or afternoon; raw vegetables are easy to eat while taking a few minutes of rest; and fruit and fruit juices are acceptable at any hour of the day.

A MEAL PLAN. A meal plan especially applicable to pregnant and nursing women is given, but it is equally good for family meals.

Breakfast

Orange, grapefruit, other citrus fruit, tomato, or stewed prunes
Whole grain cereal with milk or molasses and butter or margarine
Whole grain or enriched bread with butter or margarine
A glass of milk; coffee if desired

Lunch or Supper

Vegetable in some form—creamed, escalloped, in cream soup, or salad
Cheese, peanut butter, or egg if not used at other meals

Whole grain or enriched bread with butter or margarine

Applesauce or prunes if not used at breakfast

Milk if the full amount is not used in cooked foods

A nourishing dessert, such as rice pudding, cornstarch pudding, sponge cake, gingerbread, or cooked fruit if not used earlier in the meal

Dinner

Tomato juice unless taken between meals

Muscle meat, liver, kidneys, or other meat at least four or five days during the week; on other days, legumes, cheese, or egg

A vegetable; a dark green leaf vegetable if not used at lunch or supper; a raw vegetable or a salad often

Potatoes

Whole grain or enriched bread with butter or margarine

Milk dessert or fruit

Between-Meal Suggestions

Milk and egg, if egg has not been taken at other times

Milk and whole grain or enriched bread, toasted

Milk and banana or other fruit

Vegetable juice and tomato cocktail with toast or cookies

Avoid

Coarse fibers, such as bran

Fried and rich foods, such as rich pastries, heavy cream, rich meat gravies, heavy salad dressings

Highly seasoned foods, including sausages, pickles, sour sauces

Any food that causes distress

Promoting Proper Elimination

A LAXATIVE DIET. Fruit, vegetables, and whole grain bread and cereals help to stimulate daily elimination of waste products, but when more effective measures are needed, these suggestions may be found useful:

Fruit and a glass of water one-half hour before breakfast.

Figs, soaked raw prunes, or soaked dried apricots at night before retiring.

Molasses on bread or cereal or in gingerbread, puddings, and cookies.

Liberal amounts of raw vegetables, chewed well.

Two or three quarts of liquid to drink each day; milk, fruit juices, tea, and coffee all may be counted as liquid.

A glass of water the first thing in the morning, one or two glasses between each two meals, and as much more as desired.

Regular toilet habits are essential.

Regular exercise helps to stimulate peristalsis and helps to prevent constipation.

II. A High Iron Diet

NUTRITIONAL ANEMIA. Even though nutritional anemia is less common than was formerly supposed, the large number of records in clinics which say "low hemoglobin—high iron recommended" testify to the large number of individuals who might be more energetic if their meals furnished more iron.

The national and racial groups that use white rice, cornmeal, and white flour in place of whole grain or enriched products are in danger of low hemoglobin, especially any members of a family who may be "choosy" with regard to foods set before them.

Family meals may contain all the foods needed to provide adequate iron for everyone, yet some member may not take his or her full share of them. A young girl, for instance, may try to control her weight with a slice of whole wheat toast, a glass of milk, and an orange for breakfast; tomato sandwich and ice cream for lunch; and a dinner consisting of two vegetables, a small piece of meat, and fruit for dessert.

At first glance, these meals may seem fairly well planned, but they furnish only about two thirds as much iron as a young girl needs each day to maintain her hemoglobin at a high level. When such meal patterns are followed for a period of months, easy fatigue, "laziness," and other symptoms of nutritional anemia are likely to result. If these symptoms reach a stage for medical attention, doubtless medicinal iron will be recommended as a means of restoring iron to the tissues but a diet high in iron will be needed to hold the gains made.

MEALS ADEQUATE IN IRON. The meals of the girl just mentioned are obviously low in several factors other than iron and

this is true in most instances of nutritional anemia. The first step in regulating the food iron is to plan meals to furnish all nutritional factors in adequate amounts—calories, protein, minerals, and vitamins. Since calcium and copper are necessary to make iron effective, milk with its calcium and foods rich in copper need specially to be included. If meals are well-planned with whole grains, green leaf vegetables, eggs, and legumes, copper should be automatically included but these sources of copper are included for reference:

Foods Rich in Copper

Dried beans, peas, and lentils

Eggs, liver, and oysters

Green leaf vegetables

Prunes, apricots, and avocados

Whole grains, especially barley, oatmeal, whole rye, and whole wheat

Avocados and apricots may be too expensive for low-income families unless these foods are grown near by and so may be obtainable at bargain rates. Oysters, too, are beyond the low-cost food budget, except for families living on the coast where they can gather their own supply. While apricots and oysters are especially beneficial and should be used when a family can afford them, beef liver, whole grains, legumes, prunes, dark green leaf vegetables, and molasses also are effective in increasing hemoglobin and usually are available at very low cost.

Planning a High-Iron Diet

The usual recommendation for a high iron diet is from 15 to 20 mg. daily, or from 3 to 8 mg. more than the recommended allowance of 12 mg. for normal adults. Since the diet needs to be well-planned in all respects—not merely high in iron—it would be well to start with the Food Guide, Chapter II. If this plan is followed, using at least half whole grain bread and cereals, liberal quantities of potatoes, and a dark green leaf vegetable at least every other day, it will furnish 15 mg. of iron for a woman who needs 2200 calories, and 20 mg. for a man whose caloric re-

quirement is 3000 calories. Table 15 shows which foods are the largest contributors in this combination.

BEST IRON SOURCES. It is often surprising to note which foods appearing in the daily meals are the best sources of iron. The quantity eaten of a so-called high iron food may be so small that it contributes only a small percentage of the total amount needed for the day while a food often considered a comparatively poor source of iron may contribute a much larger proportion because of the greater quantity eaten.

TABLE 15
IRON CONTRIBUTED BY VARIOUS FOODS IN A WELL-PLANNED DIET

<i>Food</i>	<i>Quantity</i>	<i>Iron Supplied mg.</i>
Milk	4½ qts.	2.7
Cheese	2 oz.	0.3
Potatoes	4 lbs.	11.0
Fresh vegetables	3½ lbs.	14.0
Legumes	3 oz.	6.0
Fresh fruit and tomatoes	2½ lbs.	3.5
Dried fruit	4 oz.	4.0
Eggs	3	4.0
Meat and fish	1½ lbs.	24.0
Bread and cereals	22 oz.	36.0
Total iron supplied		105.5 mg.
Daily average		15+ mg.

According to Table 15, bread and cereals furnish about one third of a person's daily iron need, provided he eats half whole grain or enriched products, while potatoes and fresh vegetables supply about one fourth of his iron, provided a green vegetable is used every other day. These are important points to have in mind when helping families with limited amounts of money to plan high iron diets.

If less bread must be eaten, as in a reducing diet, other combinations may be arranged which will furnish the same amount of iron. For convenience in making such combinations, milligrams of iron which average-sized servings of iron-rich foods supply are given in the following list:

Foods High in Iron
Approximate Iron Values

		mg.		mg.
Liver	3 oz.	10.0	Dark green leaves $\frac{1}{2}$ c. (c'k'd)	2.5
Oysters	$\frac{1}{2}$ c.	9.0	Dried legumes ..	1 oz. 2.0
Kidneys	4 oz.	7.0	Molasses	1 tbsp. 1.7
Muscle meat	4 oz.	2.0	Dark farina	$\frac{3}{4}$ c. (c'k'd) 1.0
Egg	1	1.3	Whole grain or	
			Enriched bread	2 sl. 1.0
			Potato	1 1.0

Points to Remember When Planning Meals High in Iron

Include at least three iron-rich foods every day.

Serve oatmeal and whole wheat cereals for breakfast; use them in muffins, bread, and cookies. Suggest barley for soups. The iron in these grains is well used. Cornmeal and white rice are low in iron.

Brown rice has much more iron than white rice.

Potatoes are richer in iron than macaroni or spaghetti. The latter should not be used as a substitute for potatoes more than once or twice a week.

From 30 to 50 per cent of the iron in green vegetables may be lost if they are cooked in a large amount of water and the water thrown away. They should be carefully cooked to save iron as well as other minerals and vitamins.

Legumes are rich in copper as well as iron. They are inexpensive and should be used freely by those who need maximum food value at least expense .

Eggs contain iron in a form that is easily utilized.

Liver, kidney, and chicken and turkey gizzards are rich in iron.

Heart has more iron than muscle meat, but less than liver.

The percentage composition of iron in nuts is high but the quantity of nuts that can be eaten in any one day is small. Nuts should not be counted on as a source of iron.

Pure molasses is high in iron, one tablespoonful furnishing as much as one egg, a serving of dark cereal, or one third cupful of

Suggestions for Low-Cost Iron-Rich Meals

Breakfast	Lunch or Supper	Dinner
Orange	Lima bean* and carrot soup (made with milk)	Braised beef liver*
Oatmeal*	Raw green pepper	Baked potatoes*
Milk on cereal and for drinking	Gingerbread*	Kale or other green leaf vegetable*
Whole wheat bread*	Milk	Enriched bread*
Coffee for adults if desired		Prune whip*
or	or	or
Dark farina*	Creamed egg* and potato* on whole wheat toast*	Meat* and barley* stew with potatoes,* carrots, and onions
Milk on cereal and for drinking	Cooked turnip tops*	Turnips
Stewed prunes*	Raw carrot strips	Whole wheat bread*
Enriched bread*	Banana and orange cup	Brown rice and raisin pudding*
Coffee for adults if desired	Milk	

* Foods high in iron.

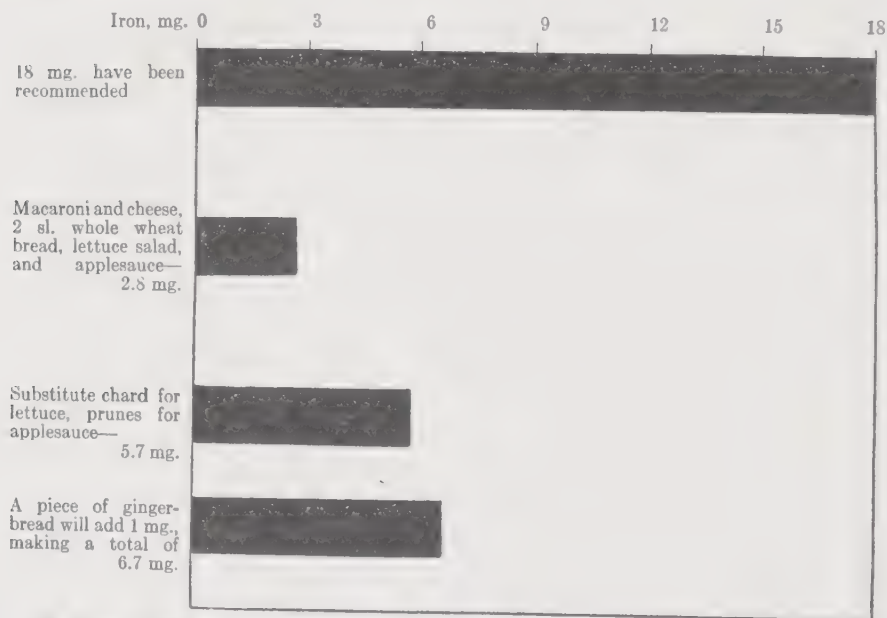


Fig. 25.—Showing how slight changes may double the iron content of a diet. In the lunch illustrated, the substitution of chard for lettuce and prunes for applesauce increases the iron from 2.8 to 5.7 mg. One piece of gingerbread will add 1 mg., making a total of 6.7 mg.

cooked spinach. If molasses is not too laxative, it may be used freely.

Vitamin C in such foods as citrus fruit and tomatoes helps in the assimilation of iron.

INCREASING IRON. Figure 25 shows how an iron-poor meal, consisting of macaroni and cheese, lettuce salad, and applesauce may be made high in iron by substituting a dark green leaf vegetable for lettuce, prunes for applesauce, and adding a piece of gingerbread. It frequently takes only one or two adjustments, such as substituting whole grain or enriched bread for plain white bread, potatoes for rice, using liver instead of veal, or increasing the amount of green vegetables, to transform meals that are low in iron into a diet that is high in iron.

III. Diet in Constipation

Only the two kinds of constipation that are influenced by diet will be considered here—atonic constipation in which stimulation through food is often helpful in promoting proper intestinal activity, and spastic constipation in which a bland diet is needed to prevent overstimulation of the colon. The prevention of constipation should be stressed to prevent the need for medical care.

Atonic Constipation

In atonic constipation, there is need to stimulate the intestinal tract to greater activity. This may be done through mechanical stimulation by bulky foods and coarse-fibered vegetables, such as whole grains, yellow turnips, kale, and raw vegetables. Certain minerals in vegetables may be stimulating. Fruit acids also stimulate intestinal activity. Thiamine in whole grains, legumes, and dark green leaf vegetables produces better muscle tone which should be useful in preventing constipation.

In general, foods that stimulate peristalsis are usually valuable for minerals and vitamins and should be included in all meals that are planned for health protection. Well-planned meals,

then, should help to prevent constipation for the average person, provided toilet habits are regular, a sufficient amount of exercise is taken, and other conditions are favorable.

For those who need more stimulation than these foods provide, special emphasis should be placed on whole grain bread and cereals, vegetables which tend to leave a bulky residue in the intestinal tract, and acid fruits. Foods that are laxative for one person, however, may not be effective for another. The following suggestions may help in solving individual problems:

Blackberries are often constipating; they should be used cautiously.

Not all individuals can use bran. It should be advised cautiously.

Such foods as corn, cabbage, kale, yellow turnips, skins of potatoes, skins of fruit, and honey are often useful.

Vegetables should be cooked in a small amount of water and the water used with the vegetable to preserve any minerals that may be useful in stimulating peristalsis.

Raw vegetables are useful in preventing atonic constipation.

Skins of fruit and baked potatoes may be used successfully in some instances.

Fruit should be used as liberally as possible. Fruit one-half hour before breakfast is frequently effective, especially if taken with a glass of water.

Figs or soaked raw prunes at bedtime bring relief in some instances.

Molasses is an excellent laxative. It may be used freely.

Six to eight glasses of water or other liquid are very desirable to prevent a dry residue in the intestinal tract. One cupful the first thing in the morning and one or two cupfuls between each two meals is a desirable routine. Fruit juices, milk, and tea and coffee may be counted as liquid.

Mineral oil combines with vitamin A and removes it from the system. This oil should be used only on the recommendation of a physician.

Spastic Constipation

A BLAND DIET. When constipation is increased by coarse foods, as in spastic constipation, the treatment is usually a medical problem. In planning meals, it is important to select foods that are non-irritating and yet will promote intestinal activity.

This must be accomplished with bland foods that have little fiber, but the amount of fiber that can be eaten without irritating the digestive tract varies with the individual and the severity of the condition. Only foods that are generally accepted as bland are included in the list that follows:

Milk; as a beverage, in milk toast, milk soups, such milk desserts as custards, cornstarch pudding, and rice pudding; buttermilk may be useful.

Eggs; soft-cooked, scrambled, in custards, eggnogs, and creamed on toast; never fried.

Bread and cereals; no coarse fibers, flakes, or grains allowed; these cereals should be strained; enriched light farina is high in minerals and vitamins and may be used; enriched bread, at least one day old, is permitted.

Fruit; juice of fruit or fresh fruit permitted; mild flavored cooked fruit without skins, seeds, or coarse fiber may be used, such as baked apple, applesauce, and cooked pears. Apricots and prunes are usually strained. Bananas may be given if very ripe. Melons are often permitted. Oranges and grapefruit are sometimes given, though not always tolerated.

Vegetables; most vegetables are permitted if young, without tough fiber, and properly cooked; they often have to be strained. No raw vegetable should be eaten. Water in which vegetables have been boiled is useful because of the minerals and vitamins dissolved in it.

Meat; tender meat is allowed; it should be cooked slowly to soften connective tissue; it is often irritating if fried.

Fats; butter, fortified margarine, and olive oil are recommended in some instances, but not always well tolerated; no fried foods are allowed.

Sweets; honey and maple sirup are sometimes recommended; lactose is often added to fruit juice to produce mild fermentation. This stimulates activity within the intestinal tract without irritation.

IV. Control of Weight

WEIGHT-CONSCIOUSNESS. Little thought is given to weight by the average person so long as it causes no mental suffering or physical illness and, while it is unwise to become too weight con-

scious, utter lack of attention to it frequently furnishes a good illustration of "locking the barn after the horse is stolen."

If weight for adults were kept within the limits given in Tables 16 and 17 on pages 205 and 206, the dangers from low resistance in the underweight individual and the threat to internal organs which accompanies overweight would be avoided. Suggestions for gaining or losing weight which falls below or goes above the limits of these zones and in which there are no complicating disabilities requiring the attention of a physician are given in the following pages.

Gaining Weight

Some persons are underweight because they "don't want to eat"; some keep eating the wrong kinds of food during the day and refuse the foods that are essential for health and vigor at mealtime; some have such a small stomach capacity they are unable to eat enough at three meals to make normal gains possible; others may be overactive. Still others are underweight because they do not have money with which to buy sufficient food or, having the money, they may spend it unwisely.

There is the young woman who wants to keep her figure slender and the mature woman who tries to avoid "curves." Both young and mature women often pursue these desires with so much earnestness that they become dangerously underweight, often malnourished, because they limit their diets to too little food over too long a period of time or they follow some of the food fad systems for reducing which may be low in protein, minerals, and vitamins.

THE PLAN SHOULD BE FITTED TO THE INDIVIDUAL. In correcting an underweight condition, its cause must be known. The underweight individual who has such low resistance that his strength and vitality are at low ebb is considered in the discussion in Section V of this chapter.

The underweight person who has good resistance, no noticeable lack of strength, and a satisfactory diet so far as health-protective factors are concerned doubtless needs only a padding of fat to protect his tissues and serve as a storehouse of energy in case of illness or during periods of unusual muscular exertion

He may acquire this padding through a more liberal use of bread, cereals, other grain products, and some fat.

The person with a small stomach capacity may need to take his food in four or five small meals, including such mid-morning and mid-afternoon lunches as bread and milk, bananas or other fruit and milk, or bread and peanut butter. Those who "don't feel like eating" may need more thiamine to stimulate the appetite. Table 6, page 35, gives foods rich in this factor.

When underweight is due to a deficient diet which is causing hidden hungers, low resistance, and other disabilities, well-planned meals consisting of foods recommended in the Food Guide, Chapter II, are obviously needed. In this group of individuals are likely to be found those with too little money. They may need financial assistance. Many of them also will need to be shown how to spend the money to best advantage.

Both young and mature women who want to keep slender need sound advice about including all health essentials in their meals and to be impressed with the danger of following any pattern for reducing that does not provide adequate protein, minerals, and vitamins.

FOOD FOR THE UNDERWEIGHT INDIVIDUAL. The amount of food needed for gaining will vary with age, build, occupation, the amount of rest and sleep, and the disposition. In fact, some may gain satisfactorily if they spend more time in relaxing and go to bed at an earlier hour so as to give the body a chance to form fatty tissue from food eaten. Possibly a bit more optimistic view of life and its problems, with a more liberal disregard for some of the trivial details of everyday living, is necessary in some instances. The person who meets annoyances with calmness and takes responsibility easily and cheerfully may gain weight on less food than it takes to maintain the weight of a tense, nervous person considerably below the average. Whatever the cause of undernourishment, the basic food needs are the same:

At least a pint of milk daily; a quart is more desirable.

Two or more servings of fruit, including one serving of citrus fruit or tomato each day and some cooked fruit several times a week.

Two or more servings of vegetables, including potatoes daily and a dark green leaf vegetable at least every other day; some raw vegetable often.

Each day an egg and a generous serving of one of the other protein rich foods—meat, fish, legumes; liver or kidney at least once each week.

Liberal amounts of bread and cereals at every meal with enriched and whole grain products predominating.

Liberal amounts of fat, if fat is well tolerated.

One or two teaspoonfuls of fish liver oil or its vitamin equivalent in capsules or tablets.

Sugar and other sweets in moderation.

SOME FOODS USEFUL FOR INCREASING WEIGHT AND PROTECTING HEALTH

Bananas, dried fruits, all fruits.

Legumes, including peanut butter.

Potatoes, both white and sweet.

Butter, fortified margarine, and cream.

Whole grain and enriched bread and cereals.

Jams, jellies, and marmalades in moderate amounts.

TUCKING IN CALORIES. One of the secrets of gaining weight is to add a few calories here, a few there, without increasing bulk. Some suggestions for increasing calories in this way are:

Cook cereal in milk.

Add raisins to the cereal while it is cooking.

Use top milk or cream on cereal.

Add extra top milk to milk that is used as a beverage.

Serve a cream sauce on vegetables.

Add a bit more butter or fat to a dish of vegetables, a baked potato, or toast.

Serve breakfast toast with a cream sauce to which has been added an extra teaspoonful of butter.

Pour custard over sliced bananas as a dessert.

Slice a banana over the breakfast cereal.

Crackers and peanut butter make a hearty and high calorie in-between-meal lunch.

Reducing Weight

OVERWEIGHT A SERIOUS PROBLEM. The number of men and women who are overweight and the high incidence of diabetes, high blood pressure, hardening of the arteries, and other diseases to which the overweight individual is especially susceptible, make overweight one of the major health problems of the country. Overweight occurring after thirty-five or thereabouts is considered so hazardous that it is one of the chief reasons why insurance companies limit the coverage for applicants who are over a desirable weight for height and build. According to figures given in a recent issue of the Statistical Bulletin put out by the Metropolitan Life Insurance Company, mortality increases about 30 per cent as weight increases 20 per cent above a desirable level; about 50 per cent as weight increases 30 per cent; and 100 per cent as weight increases 50 per cent.

In spite of this threat to health, weight is all too often allowed to creep higher and higher until it becomes an inconvenience before anything is done about regulating it. Frequently the first attention to overweight is the remark of a friend who says: "How well you are looking!" Not until several years later may the person realize that increased weight is no longer an asset which improves appearance, but instead is a liability which may endanger health and interfere with chances for advancement.

A person over thirty-five or forty years of age especially is likely to think nothing about the gradual increase in weight until some physical handicap calls his attention to it. He may even think increasing weight with advancing years is inevitable. In spite of the slowing down of his internal processes and his less active life, he often continues to eat as heartily as in former years and the food that was then used for energy is now stored as fat. This extra weight puts more and more strain on blood vessels, heart, kidneys, and other organs as weight increases.

Extra Calories. It takes only a few calories extra each day to cause a very substantial gain in weight over a period of years. One slice of bread, one pat of butter, one piece of candy, each of which is "worth" about 100 calories, may add only one third of an

ounce to a person's weight each day, or about two ounces per week. This is an almost imperceptible gain when considered by itself, but two ounces every week will increase weight by seven pounds per year, thirty-five pounds in five years, and seventy pounds in ten years. While it may be possible to lose this fat at the end of ten years, it may be too late to prevent its harmful effects.

REDUCING AS A GRADUAL PROCESS. For the person who thinks he wants to reduce but becomes skeptical because he does not look thinner a few days after starting a reducing diet, "getting weighed" is an excellent aid. Scales should not be consulted more than once a week, though, for daily losses, like daily gains, may seem inconsequential. An average daily loss of about two ounces, or from twelve to sixteen ounces per week, is desirable, but if this loss seems small when compared with the total amount of fat that must be burned, it may be helpful to forget the smaller amount and keep the mind fixed on the forty-five pounds a year which these weekly losses will produce.

Safe Losses. Weekly losses should not exceed one and one-half pounds, while a loss of from three-fourths to one pound is preferable, except during the first few weeks in the reducing of a very obese person. Small losses are not only safer, but they help to prevent a feeling of exhaustion and the hunger pangs which may weaken the will power of even the most ardent reducer. They also prevent a haggard look and a wrecked disposition which usually go hand in hand with rapid reducing. Frequently there seems to be no apparent loss for a time because of the retention of water in the tissues but if calories are reduced, losses are sure to occur and a person should not become discouraged.

GUIDES TO IDEAL WEIGHT. Table 16 gives ideal weights for men twenty-five years of age and over and Table 17 gives ideal weights for women who are over twenty-five. They were prepared in the Metropolitan Life Insurance Company. They give the desirable weight rather than the average because the average after a person is thirty or thirty-five years of age is no longer considered a goal toward which to work. In selecting the ideal figure for each height, body structure has been considered with empha-

sis on such points as the breadth of the shoulders, the length of the trunk in relation to total height, and musculature.

POINTS TO KEEP IN MIND. Since success in reducing depends on a person's ability to deny himself the pleasure of eating as much as he wants of many of the foods he likes best, it is essential to have a plan and to follow it implicitly. This is the safest

TABLE 16
IDEAL WEIGHTS FOR MEN 25 YEARS OF AGE AND OVER*

<i>Height with Shoes</i>		<i>Weight in Pounds (as Ordinarily Dressed)</i>		
Feet	Inches	Small Frame	Medium Frame	Large Frame
5	2	116-125	124-133	131-142
5	3	119-128	127-136	133-144
5	4	122-132	140-130	137-149
5	5	126-136	134-144	141-153
5	6	129-139	137-147	145-157
5	7	133-143	141-151	149-162
5	8	136-147	145-156	153-166
5	9	140-151	149-160	157-170
5	10	144-155	153-164	161-175
5	11	148-159	157-168	165-180
6	0	152-164	161-173	169-185
6	1	157-169	166-178	174-190
6	2	163-175	171-184	179-196
6	3	168-180	176-189	184-202

* From the Metropolitan Life Insurance Company Statistical Bulletin, June, 1943.

way to avoid the extra calories which spell disaster in reducing. In making and following a plan, these points need to be kept in mind:

Before beginning a reducing diet, it is essential to have a physical examination.

Meals must be low in calories, high in protein, minerals, and vitamins. This means a generous use of milk and other protein

rich foods, fruits, and vegetables, but very small amounts of bread, cereals, fats, and sweets. Figure 26 shows how few calories the health-protective foods contain.

All calories should be selected from foods containing a maximum amount of minerals and vitamins, such as whole wheat and enriched bread instead of white bread which is not enriched.

Potatoes and bananas are both excellent foods but three or four a day of either is too many for a person who wants to reduce.

TABLE 17
IDEAL WEIGHTS FOR WOMEN 25 YEARS OF AGE AND OVER*

<i>Height with Shoes</i>		<i>Weight in Pounds (as Ordinarily Dressed)</i>		
Feet	Inches	Small Frame	Medium Frame	Large Frame
4	11	104-111	110-118	117-127
5	0	105-113	112-120	119-129
5	1	107-115	114-122	121-131
5	2	110-118	117-125	124-135
5	3	113-121	120-128	127-135
5	4	116-125	124-132	131-142
5	5	119-128	127-135	133-145
5	6	123-132	130-140	138-150
5	7	126-136	134-144	142-154
5	8	129-139	137-147	145-158
5	9	133-143	141-151	149-162
5	10	136-147	145-155	152-166
5	11	139-150	148-158	155-169

* From the Metropolitan Life Insurance Company Statistical Bulletin, October, 1942.

Meals made bulky with coarse fibered fruits and vegetables, such as apples, cabbage, kohlrabi, kale, and yellow turnips, will help to give a satisfied feeling.

Butter needs to be used sparingly on bread, toast, baked potato, and all other foods; vegetables should be eaten without butter.

Cereals should be eaten with only milk or top milk, no heavy cream or sugar.

Calories may be reduced by using buttermilk or skimmed milk in place of whole milk.

Hot breads should be avoided as the temptation to use more butter than the reducing plan allows may be too great.

Fried foods should be avoided.

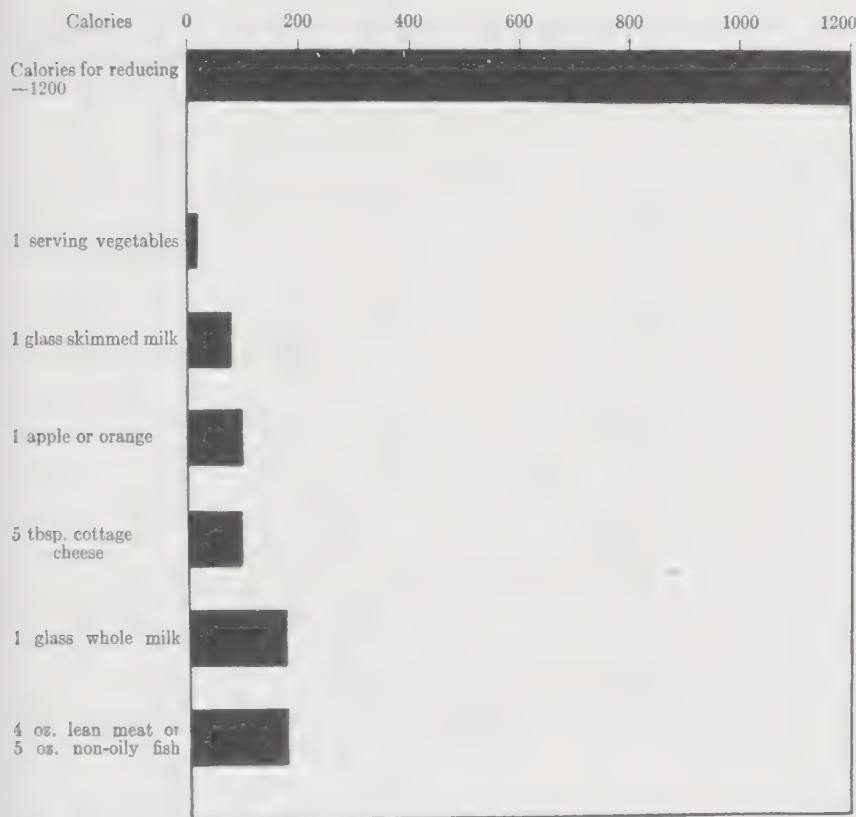


Fig. 26.—Foods low in calories. A person who is trying to reduce should select such foods as often as possible.

Uncooked salad dressing made with evaporated milk and vinegar or lemon juice will provide fewer calories than French or mayonnaise dressing. A cooked salad dressing made with egg, milk, vinegar, and seasoning is also a good substitute for an oil dressing. Salad dressing made with mineral oil should be avoided.

because it may combine with vitamin A and remove it from the system.

All fruits should be eaten without sugar. Unsweetened fruit is preferable to sweet desserts and pastries at the end of a meal. It contains fewer calories and helps to give a satisfied feeling as

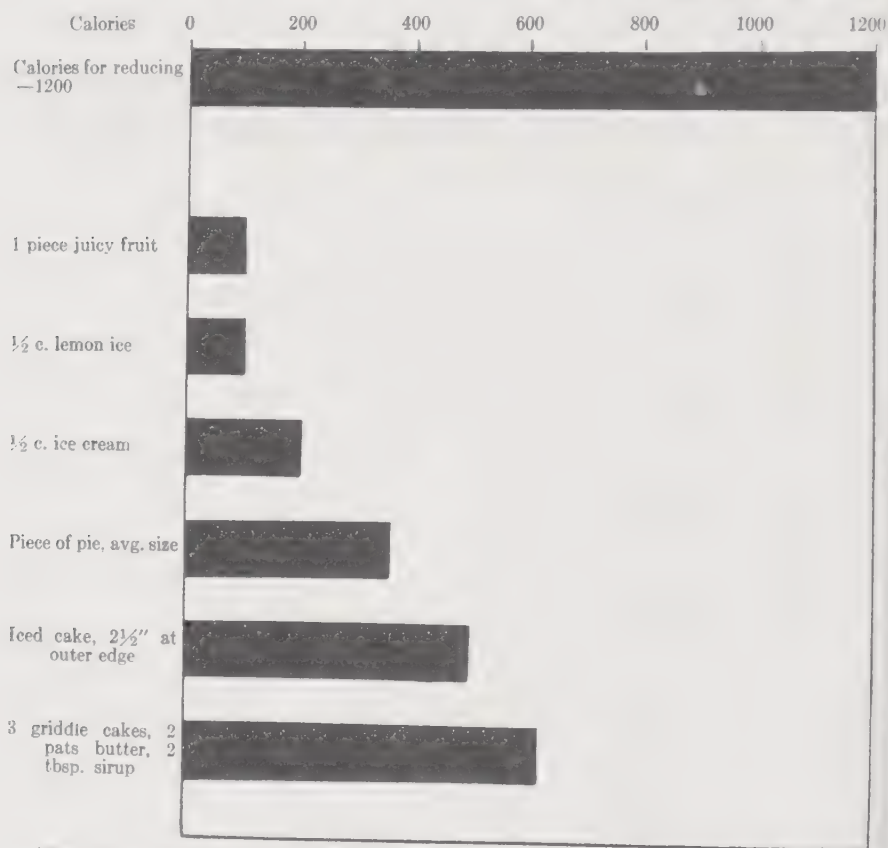


Fig. 27.—Calorie value of some desserts. Showing the comparison of the calorie value of some common desserts with calories recommended for the day.

one leaves the table. Figure 27 gives the calorie value of some common desserts compared with the number of calories a person who is reducing is usually allowed.

If tea and coffee are used, they should be taken without sugar and cream, unless the top of the two cupfuls of milk is preferred in this way.

There should be no nibbling between meals. Nuts, candy, chocolate bars, and soft drinks between meals may be the cause of overweight. Giving up the eating of these foods may be all that is necessary to produce the desired results in loss of weight. When tempted to eat between meals, it sometimes is helpful to

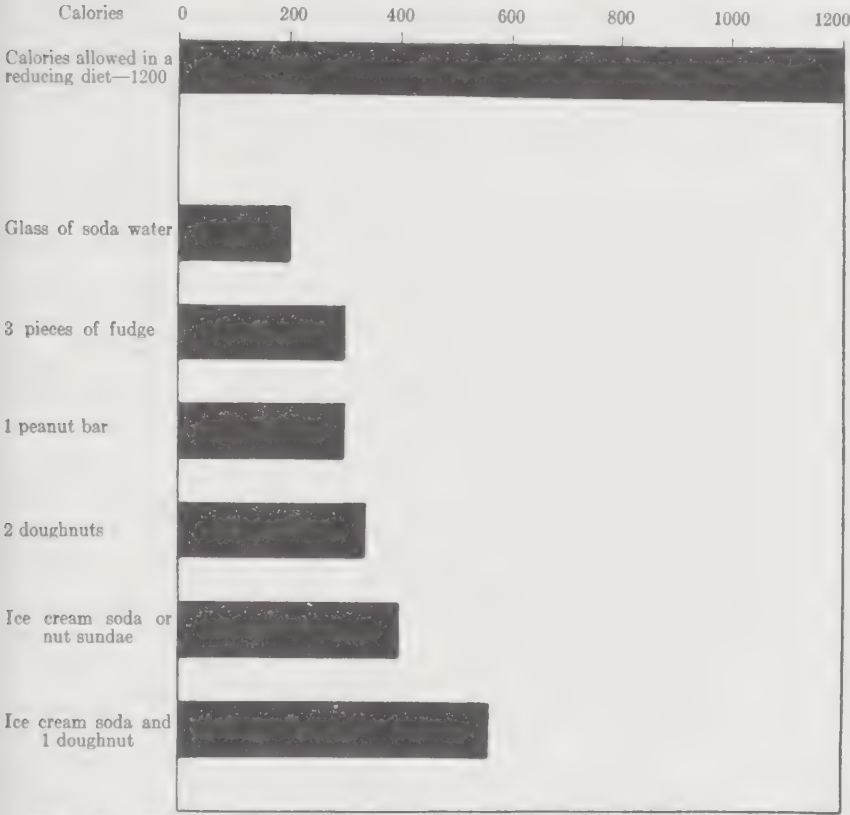


Fig. 28.—What may happen at the soft drink counter. Sources of calories that often prevent losses in weight. An ice cream soda furnishes one third of the total number of calories usually allowed in a reducing diet.

take a drink of water to satisfy hunger pangs, or some of the daily quota of milk, or some raw vegetable.

The person who is reducing must deny himself all candy, rich cake, iced cake, pie, other pastry, pudding, heavy cream, thin cream (other than the amount in the two cupfuls of milk), hard

sauce, gravy, jelly, jam, marmalade, sirup, and ice cream soda: he should take only small amounts of fats, fat meat, and oil. Thorough chewing often helps to satisfy the appetite.

Figure 28 shows how easy it is to add calories through foods purchased at the soda fountain. An ice cream soda, for instance, will add one third of the total calories the person who is reducing should have for the entire day.

COUNTING CALORIES. A reducing diet recommended for an adult usually calls for from 1200 to 1600 calories per day. A diet providing 1200 calories is included as a guide.

A REDUCING DIET*

Use these foods each day; use no food not on the list

	Approximate Calories Daily Total—1200
Milk—Two cups; use to drink, on cereals, in soups	335
It may be bottled or diluted evaporated milk.	
Vegetables—Potatoes; a small one (2½" in diameter)	65
Dark green leafy; 1 large serving	25
Other vegetables; at least 1 large serving	40
Use raw vegetables often; cabbage, tomatoes, escarole (or other salad greens†).	
Fruit—Three pieces, raw, as:	
Orange, half grapefruit, apple, other in season	225
Use no sugar with fruit, and no canned fruit.	
In place of 1 piece of fruit, use 3 or 4 prunes, or 1 glass of unsweetened grapefruit juice.	
Eggs, Cheese, and Beans—Choice of one	140
(a) Two eggs; "boiled," poached, eggnog.	
(b) Cottage cheese; ½ cupful.	
(c) Cooked beans, as lima or navy, ½ cupful.	
One egg and ¼ cupful cottage cheese equal one "choice."	
Lean Meat or Fish—One serving, about 4 ounces	150
Lean beef, veal, lamb, liver; fresh or canned fish; remove all fat.	
Use no fried meat; broil it, or use the lean from a roast or stew.	

* Planned and used in the Nutrition Service of the Community Service Society, New York City.

† Added by the author to make applicable where escarole is not available.

- Cereal and Bread—Two or three servings 150
- A cooked dark cereal at breakfast.
- One or two slices whole wheat bread.
- An extra slice of bread may, at times, be used instead of the cereal.
- Butter or Margarine—Two teaspoonfuls, on bread or vegetables . . . 70
- Tea and Coffee—If desired.
- Use no sugar, and no cream unless it is the top milk from the two “cupfuls.”

PATTERN FOR MEALS

Breakfast	Dinner
An orange, other fruit, or fruit juice	Soup, or
Cereal with $\frac{1}{2}$ to 1 cup milk	Salad—no mayonnaise or oil dressing
An egg if desired	1 slice of bread
1 slice of bread or toast	1 piece of fruit
Tea or coffee (if desired)	

Lunch or Supper

- Meat or fish
- Potato—cooked in skin, often
- Cooked vegetable
- Salad, cole slaw, or raw vegetable strips
- A piece of fruit
- Tea or coffee (if desired)

Between Meals

If desired, a glass of the milk or a piece of the fruit may be eaten between meals or at bedtime instead of at meals.

For a 1000 Calorie Diet

- If you need only 1000 calories a day, two slight changes in the 1200 Calorie Diet should be made:
- Use skimmed milk instead of whole milk 150 calories less
- Omit one slice of bread 50 calories less

MAKING AN INDIVIDUAL PLAN. Plans other than the one given may be made to suit individual tastes, but each plan should be based on the correct number of calories, with calories so distributed among the various types of food that adequate protein,

minerals, and vitamins will be included. Otherwise the reducing diet will leave the individual with hidden hungers. Unless calories are carefully estimated, it will be very easy to slide in 200 to 300 extras which can turn a supposedly reducing diet into one that produces gains.

As shown in Figure 29, an extra slice of bread and butter at each meal, or three extra slices during the day, may provide suffi-

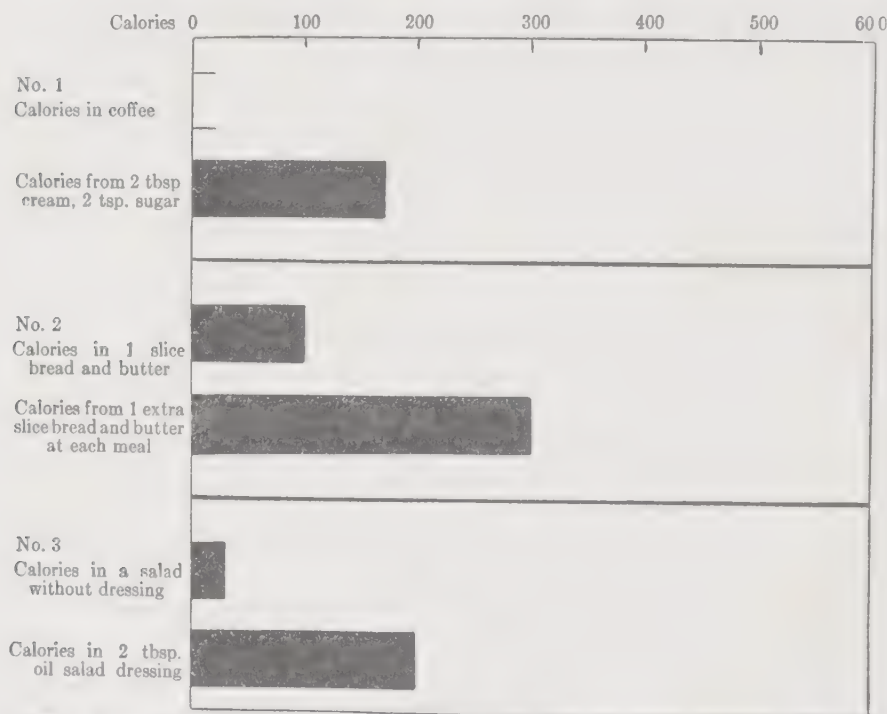


Fig. 29.—The little things that count. These illustrations show how easily calories may be increased by adding cream and sugar to coffee, eating an extra slice of bread and butter at each meal, and adding an oil dressing to a salad.

cient calories to prevent the burning of body fat which is the essence of reducing. Cream and sugar in coffee may prevent losses in weight as may also a liberal amount of salad dressing. These are only a few of the indiscretions which may make a reducing diet a disappointment.

Table 1, page 24, is arranged to make the counting of calories

a simple matter. Protein, minerals, and vitamins will be adequate if calories are selected as follows:

- One of these { 335 calories from one pint of milk, if milk is whole.
 { 140 calories from one pint of milk, if milk is skimmed.
 { 350 calories from fruits and vegetables, including a large serving of citrus fruit and a generous serving of a dark green leaf vegetable.
 { 300 calories from protein-rich foods other than milk.
 { 220 calories or less from bread, cereals, other grains, and fats
- The remaining calories, if any, may be obtained from any other food, or from additional milk, fruits, and vegetables.

RETURNING TO A NORMAL DIET. When the desired results in reducing have been obtained, an adult should return to a diet corresponding to the one recommended in the Food Guide, Chapter II, with just enough calories to keep weight at a desirable level.

V. Regaining Strength and Vigor

GROUPS NEEDING SPECIAL DIETS. Many men and women lack the strength and vigor to work all day without exhaustion, yet a physical examination may show no cause for concern. This is often true of the person who has too little to eat or whose food for years has not provided the essentials for strong muscles and endurance. Possibly he never has had an adequate diet and his disabilities are the result of hidden hungers of long standing.

Another example is furnished by the convalescent who returns from the hospital after a wasting illness, weak but full of courage because he has been told the disease is cured and he can return to his job in three or four weeks, or as soon as he feels able. Although he may not feel like working at the end of the specified time, he makes the effort but finds he is still too weak to remain the entire day. Little improvement takes place as the weeks grow into months and he becomes discouraged—often a chronic attendant at clinics.

There is also the arrested tuberculous person who does not gain in strength beyond a certain point, or he improves more slowly than those responsible for his care had expected. He, too, loses his courage.

Rebuilding Wasted Tissues

In many of these instances, a return to an active life is unnecessarily delayed because the patients try to regain strength on the same kind of food that had kept them in working condition before they became ill. This is often impossible because not all foods that will maintain an adult in good physical condition during health and vigor have the qualities to restore health after an illness, nor will they build muscle tissues that are starved because of years of privation.

PROTEIN. For instance, the protein in navy beans will keep the muscles of an adult in good condition, but they do not contain all the amino acids needed for building new tissues. To rebuild wasted tissues, an adult needs a larger amount of the best quality of protein than is necessary to maintain health. Every day he should have:

At least one quart of whole milk.

One or more eggs.

Four or five ounces of meat or fish; if not every day, at least four or five days a week; liver, kidneys, or heart, often.

An ounce of cheese or one or two ounces of dried beans, peas, or lentils on days when no meat is served, or in addition to either of these.

MINERALS AND VITAMINS. The convalescent needs more liberal amounts of minerals and vitamins than a healthy individual. Research indicates that a tuberculous person especially needs generous amounts of calcium, vitamin A, and ascorbic acid to promote the healing process. This calls for at least a quart of milk, one or two teaspoonfuls of fish liver oil or its vitamin A equivalent, and citrus fruit in abundance. Every convalescent needs an abundance of thiamine to stimulate the appetite and give tone

to the digestive tract so that food eaten may be well utilized. Every day his diet should include:

A quart of milk to supply all the calcium needed.

One or two teaspoonfuls of cod liver oil or its vitamin equivalent in capsules or tablets; this will supply vitamin A and also furnish vitamin D which will help the calcium do its work.

Two servings of fruit or tomato; this should include citrus fruit, melon, papaya, or tomato to supply vitamin C; the other fruit may be fresh or dried.

Two or three servings of vegetables to supply a variety of minerals and vitamins, such as:

Potatoes, white or sweet.

A green vegetable, at least every other day.

A yellow vegetable, at least every other day.

A raw vegetable for additional minerals and vitamins.

Other vegetables as often as desired.

CALORIES. Everyone who is trying to gain needs fats and carbohydrates to provide energy for the day, to prevent the burning of protein for energy, and to maintain weight or to permit satisfactory gains when necessary. This will require each day:

A whole grain or enriched cereal or bread, one or both, at each meal; a whole grain cereal for breakfast is desirable; brown rice is better than white rice.

Fats, including peanut butter; use in liberal amounts if well tolerated.

Sweets in moderate amounts only; they should not be used to excess or allowed to replace other essential foods.

MEALS. In most instances, a person who is recovering from an illness will need more milk, fruit, and eggs than other adults and he may find it convenient to take these additional foods in such mid-morning and mid-afternoon or bedtime lunches as milk and egg in eggnog, bread and milk, cooked dried fruit and cookies or sponge cake, or fruit alone. Otherwise his food may be prepared as a part of the family meals, provided the family food is cooked in such a way that it will not upset his digestion.

ATTRACTIVENESS IN SERVING. Attractiveness in the preparation and serving of meals is always important, but it becomes a necessity when preparing food for a person whose appetite needs stimulating. Food poorly seasoned and unattractively served may decrease the amount of food eaten and thus retard the progress of returning vigor.

While an attractive plate may create a desire to eat, a plate that is chipped and brown with age may cause a patient to lose his appetite.

Small portions are usually more appetizing in appearance than large ones and may encourage second helpings which often result in the eating of more food.

The plate should look neat and inviting with each food in a separate "corner" so the person will know whether he is eating creamed peas or mashed potatoes.

Every plate needs some color. Chopped parsley or chopped raw spinach leaves may be sprinkled over a colorless soup or a creamed dish.

All foods need to be appetizingly seasoned for the response of the stomach to taste sensations is unusually acute during illness and the recuperating period.

VI. Liquid and Soft Diets

High Caloric, High Vitamin, High Protein Diets

FEEDING A PATIENT AT HOME. One of the most common problems confronting the public health nurse is the planning of foods for patients who are ill in their own homes. This is a grave responsibility for the speed of recovery, often the recovery itself, may depend on the type of nourishment that is provided. Frequently cost is a limiting factor and recommendations must be made for feeding on a minimum amount.

Patients may be on liquid, semi-soft, soft or light diets but the specific foods that will be included in any one of these will vary

somewhat with the condition of the patient and local food supply. Some physicians may permit certain foods at an earlier period than others. Adaptations and adjustments will be necessary as in planning meals for a family under normal conditions. Only general suggestions can be given.

Liquid Diets

When a patient is put on a liquid diet, this may or may not include milk. It may call for a diet that leaves no residue in the stomach, in which case both milk and fruit pulp will be eliminated. This diet may be called a clear liquid diet. If milk is permitted, the diet may be called a clear liquid diet plus milk. If gruel, milk, cream, and gelatin are permitted, the diet is often referred to as a liberal liquid diet.

CLEAR LIQUID DIET. In the clear liquid diet which must leave no residue, foods permitted are:

Strained tomato and strained fruit juice.

Clear broth.

Tea and coffee.

Sugar and corn sirup.

Sometimes carbonated beverages.

Fruit and tomato juices provide some energy, some minerals, and a liberal amount of vitamin C (ascorbic acid). Corn sirup is often added to these juices for additional energy and sugar is permitted in tea and coffee. Fruit and tomato juice should be relied upon most heavily because of their food value but hot broth, hot tea and coffee, are usually appreciated for their stimulating qualities.

Feeding Plan. With these restricted foods, a plan for feeding may be somewhat as follows:

Morning —Strained tomato or fruit juice.

Coffee with sugar but no cream.

10:00 A.M. —Strained tomato or fruit juice with added corn sirup

- Noon —Clear broth, hot, or cold in the form of jelly.
Strained tomato or fruit juice.
Tea with sugar and lemon, if desired.
- 3:00 P.M. —Strained tomato or fruit juice with added corn sirup.
- Night —Broth, hot or cold.
Strained tomato or fruit juice.
Tea with sugar and lemon juice.
- 8:00 P.M. —Strained tomato or fruit juice with added corn sirup.

Suggestions for variations: Only clear broth should be used. It may be lamb or chicken; clam or oyster broth may be permitted. Beef and veal may be allowed under certain conditions. Relative economy will depend on availability of these foods. Families raising their own chickens can prepare chicken broth economically. If clams and oysters are easily obtainable at reasonable prices, they will give variety. In some conditions, it may be best to buy canned chicken broth if clear broth can be obtained. Broth from canned chicken soup with rice is not suitable because the fat is so finely emulsified it will not rise to the top and for this reason can not be separated, even when the broth is cold. Canned consommé and bouillon may be used if beef and veal are permitted and if these broths are not too highly seasoned.

If mechanical refrigeration is available, some member of the family may be interested in making fruit ice from fruit juice, corn sirup, and water.

CLEAR LIQUID DIETS PLUS MILK. When a cupful of milk may be included in the foods that may be given to a patient, meal suggestions given under Clear Liquid Diet may be modified by the addition of milk to the morning meal or in place of the fruit juice in mid-morning and mid-afternoon. It may be made into junket which will serve as a dessert at noon. If more than one cup is permitted, it is not difficult to slip it into other meals. Some people may like some of the milk in tea.

LIBERAL LIQUID DIETS. In a liberal diet may be included milk, cream, cereal gruels, eggs in milk drinks and custards, and gelatin, in addition to broth, strained tomato and fruit juices, and tea and coffee.

Evaporated milk may be used in custards even though it may not be acceptable as a beverage if the patient is unaccustomed to its flavor. Oatmeal is preferable for gruel and usually least expensive, though gruels may be made from barley and other whole grain cereals. Milk, eggs, and sugar may be made into ice cream for the whole family if facilities are available and if cost is not a limiting factor. Household equipment, time, and cost must be taken into consideration as in any meal planning.

Fruit juice, sugar, and gelatin may be made into gelatin desserts. If the gelatin is whipped with an egg beater just before it is firmly "set," it gives a consistency which is often better liked than the solid jelly. Tomato juice jelly made with gelatin will make an interesting supplement to the noon meal.

SUGGESTIONS FOR MEALS ON A LIBERAL LIQUID DIET

- Morning* —Oatmeal gruel thinned with milk.
Milk; 1 or 2 tbsp. cream may be added if extra calories are desired and if the patient can tolerate the fat.
Strained tomato or fruit juice.
Coffee with sugar and cream if desired.
- Mid-morning* —Milk and egg drink, or evaporated milk thinned with tomato juice.
- Noon* —Clear soup.
Strained tomato or fruit juice.
Custard
Tea with sugar and lemon or milk.
- Mid-afternoon*—Strained tomato or fruit juice; corn sirup may be added to increase calories if necessary.
- Night* —Cereal gruel or clear broth.
Strained tomato or fruit juice.
Ice cream.
Tea with sugar and lemon juice or milk.
- 8:00 P.M. —Milk.

Semi-Soft Diets

FOODS PERMITTED. In general, these foods are permitted:
Clear broth and strained cream vegetable soup.

Milk, buttermilk, butter, and cream; evaporated and dried milk may be used in place of fresh milk; undiluted evaporated milk may be used in place of cream. A salad dressing may be made by adding lemon juice to undiluted evaporated milk.

Use milk as a beverage, plain or with beaten egg; flavor in a variety of ways.

Use it in milk soups and custards.

Eggs

Eggs may be poached, soft-cooked, or scrambled.

They may be used in custards and its variations, such as snow pudding, floating island, and Spanish cream.

Fruit juice and cooked fruit which must be free of skin, seeds, and fiber may be given.

Use fruit juice as a beverage; cooked fruit may be taken plain or made into fruit whips with egg white, or made into gelatin desserts to be served plain or with whipped cream or whipped evaporated milk.

Tomato juice

Serve as a beverage, either plain or combined with vegetable juice to form a vegetable cocktail. Tomato juice may be combined with broth to make tomato soup. It may be made into tomato jelly with gelatin and served with salad dressing made with evaporated milk and lemon juice.

Vegetable juice, from such mild flavored vegetables as peas, string beans, carrots, celery leaves, and spinach, may be used; also the liquid in canned vegetables and the water in which mild-flavored vegetables have been cooked.

These vegetable juices may be given plain or mixed with tomato juice. They may be used as the foundation of broth in which to dissolve bouillon cubes. They may be used to thin evaporated milk in making cream vegetable soups.

Bread and smooth cereals may be included in the meals of patients on a semi-soft diet. Both bread and cereal should be without any bran particles. Enriched bread when obtainable is best. Cereals enriched with vitamins are best.

Puddings permitted include cornstarch, minute tapioca, and rice. These may be made with evaporated milk if desired.

A SUGGESTED MEAL PLAN FOR A SEMI-SOFT DIET

- Morning* —A vitamin-enriched cereal without any bran particles; serve with milk, top milk, or cream.
Enriched bread toast with butter or margarine.
Milk.
Coffee with sugar and cream if desired.
- Mid-morning* —Milk.
- Noon* —Clear hot soup.
Egg, soft-cooked.
Vegetable juice cocktail made from the water in which a mild-flavored vegetable has been cooked for the family meal.
Enriched bread with butter or fortified margarine.
Milk.
Rice or minute tapioca.
- Mid-afternoon*—Strained tomato or fruit juice.
- Night* —Cream of vegetable soup, strained, with toast or Milk toast.
Tomato juice or fruit juice.
Cornstarch pudding or a gelatin dessert.
- 8:00 P.M. —Milk or a fruit drink.

Soft Diets

Bulk and irritating fibers still must be avoided in the preparation of soft diets. In general, these foods may be used:

Milk—Milk in any form desired; evaporated milk may be least expensive in some places.

Cheese—Cottage cheese, cream cheese, and American cheese when melted in a milk sauce below the boiling point. It may be poured over enriched bread toast, mashed potato, or rice. It should not be heated above the boiling point or browned under a flame or in the oven.

Eggs—Eggs, which may be cooked in any way except fried.

Cereals—Cereals without coarse fiber; refined cereals enriched with vitamins are suggested.

Bread—Bread without bran particles; enriched bread is suggested where it is available.

Rice—Rice and macaroni; well-cooked until thoroughly soft.

Vegetables—Vegetable purées from such vegetables as carrots, squash, and spinach; peas and string beans should be put through a strainer. Potatoes, white or sweet; baked or boiled in their jackets, but "jackets" should not be eaten.

Fruit—Fruit juices and cooked fruit from which all skins, seeds, and coarse fibers have been removed. Ripe bananas may be given. Tomatoes, strained to remove the seeds.

Meat, Fish—Meat; lamb or chicken; beef and veal may or may not be permitted. Meat should be finely chopped or minced.

Desserts—Such puddings as rice, minute tapioca, and cornstarch; plain cake and sponge cake.

A MEAL PLAN FOR SOFT DIETS

Morning—Fruit or tomato juice.

Refined cereal, reinforced with vitamins; served with milk, top milk, or cream.

Enriched bread (if available), toasted, with butter or fortified margarine.

Milk.

Coffee with cream and sugar if desired.

Noon —Hamburger, lightly broiled.

Potato, baked in its jacket.

Mashed yellow squash or carrots.

Enriched bread and butter or fortified margarine.

Milk to drink.

Sponge cake and applesauce.

Night —Cream vegetable soup; made with juice from a can of peas which were included in the family meals.

Egg or cheese.

Milk to drink.

Enriched bread (if available) with butter or fortified margarine
Cornstarch pudding.

Tea or coffee with sugar and milk or cream if desired.

Light Diet

A light diet consists of easily digested foods with beef and veal often omitted. Melons and pineapple may not be allowed. Rich foods should be avoided and fried foods are not permitted. Highly seasoned food should be avoided.

*High Calorie Diets**

For patients on soft or semi-soft diets, calories may be increased through the use of these foods:

Additional milk with added cream.
Extra butter at mealtime.
Extra fruit juice with added corn sirup.

These calorie values will serve as a basis for calculating the amounts of these various foods to use to increase calories to the desired number:

	Calories
Each cup of milk	170
1 oz. heavy cream—about 1½ tbsp.	100
2 pats butter or 2 tbsp.	100
1 liberal tbsp. corn sirup	100
¾ cup of orange juice	100
¾ cup of tomato juice	50

A Suggested Combination

	Calories
2 extra cups of milk, making 6 cups in all	340
1 oz. of cream in each of the 6 cups of milk	600
2 pats extra of butter at each meal	300
¾ cup of tomato juice—additional—with 1 tbsp. corn sirup added	200
¾ cup of tomato juice—additional—with 1 tbsp. corn sirup added	150
Total	1590
For additional calories, use an extra egg and additional cream.	

* Adapted from Wohl, M. G.: *Dietotherapy*. Philadelphia, W. B. Saunders Co., 1945, page 944.

High Vitamin Diets

Recommendations for increasing any one of the vitamins must be based on a knowledge of the type of diet the patient is already having. Suggestions for increasing each of four vitamins are given and from them may be selected the sources best suited to the individual.

Vitamin A—Fish liver oil, cream, butter, carrots, livers, and dark green leaf vegetables.

Thiamine—Whole grains, legumes, ham, pork, kidneys, and wheat germ.

Vitamin C—Tomatoes, citrus fruit, melons, raw green peppers, and raw cabbage.

Riboflavin—Milk, cheese, liver, kidneys, and oysters.

High Protein Diets

Again recommendations for high protein will depend on the condition of the person and the type of diet permitted. For a person who can have a regular diet, this combination of foods is suggested to provide 100 grams of protein daily:

	Grams of Protein
1 quart of milk	32
2 eggs	12
5 oz. lean meat	28
1 oz. cheese	15
4 to 6 slices bread	14
Total protein	<u>101</u>

Other combinations of foods to provide high protein may be made by referring to Table 2, page 26. Commercial preparations are often used to provide high protein but should be employed as advised by a physician.

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CHAPTER VIII

FOOD AND THE FAMILY BUDGET

Money spent for one budget item is so closely interwoven with the whole financial picture that the entire budget must be considered in making recommendations about food for health protection in marginal income families.

The smaller the income, the more important it is to consider food in relation to the whole spending plan.

Budgets are individual and personal problems and require individual treatment in each family.

The term "spending plan" may seem less formal than the word "budget." The two may be used interchangeably.

Nutrition and the Family Budget

THE BUDGET IN RELATION TO THE WORK OF THE NURSE. The majority of nurses will, no doubt, be too busy with actual nursing to give much time to the spending plans of families. They will want to refer families in need of such help to a nutritionist or home economist in a welfare agency who is familiar with the details of budgeting the family income. There may be times, however, when a knowledge of the principles of budgeting may be convenient in helping an occasional family when a nutritionist or home economist is not available. This may be especially true in cases that need nursing care over a period of years.

In any event, a general understanding of the relationship of good nutrition and health and the food item to other items of

expense may help the nurse to appreciate the financial difficulties underlying health problems in families. Such an understanding will help her to make more intelligent recommendations, even though she does not have the time to assist the family in planning expenses to best advantage. For this reason, this chapter is included.

ITEMS OF EXPENSE. In many families, income is obviously too low to provide sufficient food for good nutrition and they may need the service which is available at a family service agency. In many families, income may seem inadequate but food for health protection could be purchased if money were more wisely spent.

Whether income is actually inadequate or only seems so, rent, gas and electric bills, carfare to and from work, social security, union dues, and insurance are fixed expenses which must be met regularly or benefits derived from them will be curtailed. A certain amount of household equipment and supplies, such as dishes, a broom, and soap, and a certain amount of clothing are inevitable expenses. Food, the largest item on the list, is usually purchased from day to day, the amount varying with personal choice, total income, and the money left after other items have been paid for.

FOOD OFTEN SACRIFICED. Because of the variability and flexibility in food expenditures, this is the item which usually suffers when income is inadequate or when unwise spending makes it seem insufficient to supply all needs. Food is the item in the budget that is usually drawn upon to meet extra expenses, such as medicine and clinic fees. A family may go without proper food for two or three days to save money to buy medicine; or weeks, or even months, so that some member of the family may have needed medical care. When these inroads on money that should be spent for food occur too frequently or extend over too long a period of time, a vicious circle is created in which sacrifices in food cause impaired nutrition and illness and expenses in connection with the illness call for further borrowing from the food money. How can the nutrition of the family be protected in such instances?

A REVIEW OF EXPENSES. Many mothers spend from day to day with no real comparison of income and outgo, but a careful re-

view of one with the other will often show whether extra nourishment for one member of the family can be provided, or some necessary medical treatment can be supplied, without using money that should be spent to buy food for the whole family. Such a review also will help to clarify the thinking of the nurse so that she can adapt her recommendations to the financial situation in the family. It will, for instance, help to answer such questions as these: "Should a mother be urged to provide a certain treatment for a child when it may mean inadequate food and possibly hidden hungers in the tissues of other children?" "Can some other expenditure be reduced, or will more careful buying help to pay for the extras without sacrificing food?" "Is there some other way to provide the treatment?" Doubtless a case worker, medical social worker, home economist, or nutritionist with a welfare agency will be called in to help in solving these problems, for they are some of the questions that must be answered in making satisfactory recommendations. The mother herself may be able to solve her own difficulties by making a careful review of her expenses and income.

LONG-TIME SPENDING. Families in which there is chronic illness, and which the nurse follows for a period of years, may need to rearrange their whole spending plan to make it possible to meet extra expenses. Budgets are individual as well as private problems and can be worked out only by the family concerned but many families want and need help in analyzing and reviewing spending habits. The making of such a plan is outlined in the following pages so that the nurse may know what is involved and how it may prove of benefit to a family.

Making a Spending Plan

CONSIDERATIONS. In determining the amount of money necessary to meet adequately all the needs of a family, one must consider, not only such obvious points as the size of the family, the age and activity of each member, cost of lunches purchased away from home, installments on debts, and other financial obliga-

tions, but expenses contributing to wholesome mental attitudes also are important. A daily newspaper for an elderly person or club dues for a young girl may seem like unnecessary expenses, yet they may mean contentment and happiness that help to prevent mental disturbances which may eventually upset the whole family.

PERIOD TO BE COVERED. The process of planning a budget consists of four, possibly five, steps. First, however, the period to be covered by the plan must be determined. This may be a week, a month, or a combination of the two. Since costs of such items as clothing and fuel for heating vary widely from month to month, and season to season, it will be necessary to reduce the cost of such items to the same basis as has been selected for the budget period. This is done by estimating the amount spent for each item during the entire year and dividing this yearly figure by twelve to reduce to a monthly basis, or by fifty-two to reduce to a weekly basis. Any monthly figure may be reduced to a weekly basis by dividing the monthly amount by four and one third, the average number of weeks per month (fifty-two divided by twelve).

STEPS IN MAKING A SPENDING PLAN

- Step I Calculate income for the budget period decided upon.
- Step II List all expenses. Classify them under such headings as rent or taxes and upkeep (if home is owned), food, clothing, fuel, carfare, health, and other expenses. Estimate approximate amount spent for each during the period decided upon.
- Step III Compare the total of estimated expenses with total income for the corresponding period. If outgo equals or exceeds income, study expenses for possible reductions in each item.
- Step IV Draw up another plan including possible adjustments if necessary.
- Step V An optional, but sometimes useful, step is a comparison of the budget plan with a guide suggesting a reasonable expenditure for each item. Such guides are often available at a nearby social agency.

A BUDGET FORM. Since the needs of no two families are exactly the same, it is impossible to prepare one budget or plan for spending that can be applied with fairness to every family that

needs help in budgeting, but the form on page 231 suggests a method which any family can use in reviewing its own spending and revising in the light of its needs.

ITEMS COMMONLY INCLUDED. Keeping in mind the fact that a family spending plan which will protect the nutrition and health must include all essential expenses, not just food and sickness care, these basic items must be provided:

Housing in a desirable neighborhood with satisfactory sanitary conditions; this may cover rent, or taxes, interest, and upkeep if owned.

Food, adequate for health protection.

Clothing, sufficient for warmth and self-respect.

Fuel for heating, lighting, and cooking; a telephone in some instances.

Household expenses covering necessary new furniture and replacement of old equipment, such as bedding and dishes; cleaning supplies, like soap and cleaning powder.

Carfare to and from work, school, clinics, and markets as needed or possibly the upkeep of an automobile in rural areas.

Health, including medical fees and supplies for the medicine chest.

Other expenses may include union dues, social security, insurance, recreation, gifts, education, and stationery.

HELPING A FAMILY TO REVIEW EXPENSES. When a family is unable to make "both ends meet" and wants to review expenses to see whether it can make dollars go farther, a form similar to the one on page 231 will be found convenient. The items of expense should be listed in Column I and the approximate amount spent for each of these items in Column II. If amounts spent for the various items are added and the total inserted beneath Column II, and the total income is inserted below the expenditures, the family will have a graphic picture of its financial situation.

The record can now be studied, item by item, to see whether savings are possible. Ways of saving can be recorded in Column III. Small savings in each of several items are often more easily accomplished than a large saving in one item. Oftentimes these small savings will be sufficient to provide the cod liver oil which a mother had felt sure she could not afford for her child. If such questions as these are suggested to a family, some of them may help in discovering ways of saving a few cents here and there.

WEEKLY OR MONTHLY SPENDING PLAN

<i>Column I</i>	<i>Column II</i>	<i>Column III</i>	<i>Column IV</i>
	Actual Expenditures	Desirable Expenditures	Comments*
Rent or Housing			
Food			
at home			
lunches purchased			
other meals outside the home			
other food, as candy and sodas			
Household equipment			
Household supplies			
Laundry if sent out			
Clothing and personal ex- penses			
Health			
medical care			
medicine chest supplies			
Carfare			
regular carfare			
incidental carfare			
Social security			
Union dues and assess- ments			
Debts, regular install- ments on			
Insurance			
Other expenses, including church, newspaper, recreation, and other small items			

* If estimates are checked with figures given in a Budget Guide, such as are given in the references at the end of this chapter, Column IV may be used for revised estimates.

possibly in items the family had assumed were already at an irreducible level.

Fuel—

Are gas and electric appliances turned off promptly when not in use?

Is gas always turned as low as is consistent with cooking processes during the preparation of food?

If coal is used for heating, are dampers regulated to conserve fuel?

Clothing—

Is clothing purchased ready-made? If so, could some of it be made at home?

Are materials and styles selected for their lasting qualities as well as appearance?

Is clothing given care which will prolong its usefulness and reduce cleaning bills?

Are proper precautions used in laundering to prevent damage to materials?

Food—

Are food expenditures reasonable? (Food economies are discussed in Chapter X.)

Are lunches carried from home instead of purchased at a lunch counter?

Is food wasted?

Is the preparation of food done so as to conserve food value?

Household Equipment—

Is reasonable care given to furniture and equipment to prolong its usefulness?

Are small repairs attended to immediately so as to prevent greater damage and the buying of new furniture or equipment?

Carfare—

Are buses and street cars used instead of taxicabs whenever possible?

Are children encouraged to walk reasonable distances—not to depend on buses, street cars, or the family automobile?

Other Expenses—

Are medicine chest supplies purchased too liberally?

Are teeth attended to regularly to prevent large cavities, impaired health, and large bills?

How about pennies given to children for sodas, candy, and the movies?

Is entertainment out of proportion to income?

Are insurance premiums a heavy drain on the family income?

Are financial obligations being paid off too rapidly? Could arrangements be made whereby debts could be paid more gradually so as to place the family on a pay-as-you-go basis?

Do sudden impulses lead to the purchase of attractive but non-essential articles?

If a careful study shows further expense is impossible without undesirable sacrifices, if every dollar seems to be spent so as to give a good return for the money, this knowledge may help to clarify a situation which was causing confusion in the mind of both mother and nurse. It may show the need for financial assistance with the referral of the family to a welfare agency.

Guides for Spending

An excellent test to apply to a spending plan is a comparison of actual expenditures with an up-to-date guide which gives a reasonable amount to spend for each budget item. This comparison will raise questions when a mother's figures differ materially from those in the guide and some of them may lead to economies in spending.

Guides for spending in marginal income families have been prepared by home economists and nutritionists who have studied the cost of family needs in various sections of the country for many years. Their figures are based on observations of actual family practices, surveys of family gas and electric bills made available to them by utility companies, discussions with clothing dealers, and actual prices of food and clothing in stores in which

low-income families ordinarily shop. Figures thus obtained have been combined with available scientific data relating to foods for health and an acceptable standard of living.

The results of these studies and observations form guides which have been accepted by public health and welfare authorities in their respective fields. When one of these guides is used, it is suggested that the guide prepared for the section of the country in which it is to be applied will be of most value in any given instance. An *up-to-date* guide needs special emphasis so that amounts given are in line with current prices. References to some of these guides are given at the end of this chapter.

GUIDES, NOT RULES. The figures given in these guides are averages which should be used, not as inflexible rules to be applied regardless of a situation, but as a basis for comparison which will lead to a more comprehensive and intelligent investigation of "whys and wherefores." If a family is spending more or less than is indicated by the guide, the natural question will be "Why?" Any deviation from the suggested amount does not mean that the expenditure made by a family is unwise. For instance, a guide may state that a reasonable gas and electric bill for a family of five is one dollar per week but if a family lives in a dark apartment, it is only natural that its electric bill will be higher than the average. Or the difference may be due to a higher gas and electric rate than prevailed in the city or community for which the guide figures were specifically made. Reality must play a large part in judging the adequacy of an income or the reasonableness of expenditures.

GUIDES OFTEN GIVE CONFIDENCE. If a comparison of a spending plan with a guide does nothing more than convince a mother she is using her money wisely, the confidence which comes with this knowledge may influence the atmosphere of a home and lead to an improvement in the physical condition of the mother.

Relation of a Spending Plan to Nutrition and Health

A spending plan helps in determining whether or not a family can buy adequate food for health protection.

It helps to determine whether or not a family income will provide foods for special needs.

It helps in spending an income so as to safeguard health through adequate food.

It furnishes a business approach to a family's food problems through a consideration of all expenses, thus giving the family a feeling of confidence which prevents worry.

No budget can be called adequate for food that does not provide a sufficient amount for every basic need for the whole family.

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CHAPTER IX

PLANNING THE FOOD BUDGET

Going to market without a list of the foods that need to be purchased for health protection often results in too little of the right foods, poor food selections, or over-spending.

The smaller the income, the more important it is to plan the marketing list and food budget before going out to buy food. A food budget as used here refers to the approximate cost of foods needed to maintain good nutrition for a given period, usually a week.

A marketing list gives a feeling of confidence and helps to take the uncertainty out of buying.

The Marketing List

A GUIDE. When at the store doing the family marketing, it is difficult to think clearly about the various points that must be kept in mind—foods to maintain the family in good physical condition; appetizing meals that will please as well as nourish; and keeping the cost within a specified amount. A shopper who goes to market without a list of foods she needs may spend more than she can afford, or omit one or more very important foods, possibly a can of tomatoes needed to supplement the ascorbic acid content of her meals. If she pays too much for the first vegetable she buys, she may feel she can hardly afford another and the family may have too few vegetables. A list of all the foods needed will help to keep important items in mind.

The Food Guide in Chapter II may be all the reminder needed by a woman who has so liberal an amount to spend that it does

not matter if she does buy out-of-season fruits before the more essential foods are purchased. When cost is a vital issue, however, as in low income families, the shopper needs a more detailed listing of foods to buy and quantities needed of each—the number of pounds of potatoes, cans of tomatoes, and other similar facts. Such a marketing list can be made for a family of any size and make-up from Table 18, which gives the quantities of various foods required by children of various ages as well as adults. Quantities given are considered the minimum needed for good health protection and should not be reduced, but when income permits a family may safely use more milk, fruits, vegetables, and other foods

Adaptations

FOR CHILDREN. The amount of each food needed during the growing period varies so slightly from year to year that children of several ages are grouped together, as from seven to twelve years of age, from thirteen to fifteen years. The range in the amount of food suggested for each group is so wide it should be sufficient for the majority of children in the group. In general, the higher figure in the food range applies to the oldest member of the age group and the lowest is intended for the youngest child. Children falling between the two age limits will require an amount somewhere between the two extremes.

There may be exceptions to this general rule, though. For instance, while it is suggested that children from seven to twelve years of age will need from three to five pounds of potatoes during the week, a very active ten-year-old boy, even though he comes in the middle of the group, may need five pounds of potatoes to satisfy his appetite. On the other hand, a studious boy of the same age may require only three pounds. A very active child twelve years of age may need as much food as is suggested for the next age group. Activity is as much a factor in determining the amount of food needed as age and each person should be considered individually as well as collectively.

FOR ADULTS. All healthy adults except those who live in warm

TABLE 18
FOODS NEEDED PER WEEK*
APPROXIMATE MINIMUM AMOUNTS

	Unit	Age Groups						Variations
		Through 3rd yr.	4-6 yrs.	7-12 yrs.	13-15 yrs.	16-20 yrs.	Men- Women†	
Milk								
Fresh, whole, or its equivalent in dried or evaporated	qts.	$\frac{7}{5}$ (1st yr.) (2nd and 3rd yrs.)	5	5-6	6	5-6	4½-6	Milk may be increased and cream may be added as desired when income permits.
Vegetables—Fruits								
Potatoes	lbs.	½-1	1½	2½-3	3½-4	3-5	2-4	Potatoes may decrease as other foods are in- creased. Adults may need from 5 to 7 pounds when doing strenuous work.
Green and yellow	lbs.	1½	1½	1½	1½-2	1½-2	1½	Green and yellow vegetables may be increased as one desires when income permits.
Citrus fruit and toma- toes	lbs.	$\frac{2}{1\frac{3}{4}}$ (1st yr.)	1½	1½	1¾	1¾	1½	Citrus fruit and tomatoes may be increased as income permits.
Dried vegetables and nuts	oz.		2	2	4-8	4-12	4-12	Legumes may be decreased as other protein- rich foods are increased.
Other fruits and vege- tables	lbs.	½-1	1½	2½	2½-3	2½-3	2½	Other fruits and vegetables may be used as freely as desired and income permits.
Eggs		5	5	5	5	5	4	Eggs may be used more freely when income permits.
Meat—Fish—Poultry	lbs.	$\frac{2}{1}$ oz. (1st yr.) ½	1	1½-2	2	2	2	Meat may be increased as income permits.
Bread—Cereals—Other Grain Products	lbs.	$\frac{1}{1\frac{1}{2}}$ (1st yr.)	2	2½-3½	4-5	3½-7	2½-4½	Bread, cereals, and other grain products may be decreased as other foods are increased. Adults doing strenuous work may need a pound of cereal products daily. An average large loaf weighs 18 oz.; an average small one, 12 oz.

Food	oz.	$\frac{1}{4}$ (1st yr.)	6	10-12	14-18	12-22	12-16	Men doing very strenuous work may need 26 oz.
Sweets	oz.	$\frac{1}{2}$ (1st yr.)	8	8-10	10-12	10-12	12	

* For greater detail, refer to Family Food Plans, Bureau of Human Nutrition and Home Economics, U. S. Department of Agriculture, Washington, D. C.

† In general, the lower figure as given here applies to the women, the higher figure to men, but a very active woman may require as much as the average man and a small, inactive man may require no more than the amount given in the lower limit of the range.

climates need practically the same amounts of milk, vegetables, fruit, eggs, meat, and fish. If warm weather causes a person to perspire freely, he will need more fruits and vegetables to make good the loss of minerals and vitamins. Since he doubtless will work less strenuously than those in colder climates, he also will need less bread and cereals. Farm laborers, lumbermen, long-shoremen, truck drivers, and others who do very hard physical work may need more bread and cereals than the table indicates. Appetite will serve as a guide, provided appetite does not tend to decrease the quantity of health protective foods eaten.

Illustrations of Marketing Orders

The combined amounts of food needed by all members of a family for a given period, usually a week, make up a marketing list or food order. Two illustrations showing the process of making a marketing list are given in Tables 19 and 20. Table 19 contains a food order for a marginal income family of four, consisting of a man who sits at a desk all day, his wife who does the housework including the family laundry, a boy of fourteen years who is on the high school football team, and a very active girl ten years of age.

In preparing the marketing list for this family, amounts in Table 18 have been closely followed. Because of limited income, minimum amounts of milk, vegetables, fruits, eggs, meat, and fish which will provide an adequate amount of the health-protective qualities have been used. The lower-than-average energy needs of the man and the higher-than-average energy needs of the woman, the boy, and the girl have been adjusted by regulating amounts of potatoes, bread, cereals and other grain products, and fats. To meet the high calorie requirements of the football player and his active sister, it was necessary to use more of high calorie foods than even the larger amount suggested for the age group to which each belongs.

Food Order No. 2 in Table 20 is for two adults, a man who does moderately hard muscular work all day and his wife who is

TABLE 19
FOOD ORDER No. 1

Weekly marketing list for a family of four, consisting of:

A man who works at a desk all day	2200 Calories
A woman who does all of the housework	2500 Calories
A boy, 14 years of age, who plays football	3500 Calories
An athletic girl, 10 years of age	2500 Calories

Income, low Season, late fall Location, North Atlantic States

		Marketing List	Individual Needs			
			Man	Woman	Boy	Girl
Milk						
fresh		9 qts.	4½	4½	6	5
evaporated		12 tall cans				
Cheese		6 oz.	1½	1½	1½	1½
Vegetables—Fruits						
Potatoes		17 lbs.	3	4	6	4
white or sweet						
Green and yellow						
green, such as	4 lbs.	6½ lbs.	1½	1½	2	1½
chard, kale, and						
spinach						
yellow, such as	2½ lbs.					
carrots and squash						
Citrus fruit and	4 lbs.	6¼ lbs.	1½	1½	1¾	1½
tomatoes						
oranges						
tomatoes, 19 oz.						
cans (Grade C)	2					
Dried legumes and		1¼ lbs.	5 oz.	4 oz.	8 oz.	3 oz.
nuts						
dried beans	½ lbs.					
peanut butter	½ lb.					
Other vegetables and		10 lbs.	2½	2½	2½	2½
fruits						
beets	2 lbs.					
cabbage	4 lbs.					
onions	2 lbs.					
apples	2 lbs.					
Eggs		1½ dozens	4	4	5	5
Meat—Fish—Poultry						
hamburger, beef liver,		8 lbs.	2	2	2	2
shank, chuck	6 lbs.					
cod, haddock, or other						
inexpensive fish	2 lbs.					
Bread—Cereals—						
Other Grain Products*		19 lbs.	3	4½	7	4½
bread, 12 18-oz. lys.	13½ lbs.					
cereal, 1 24-oz. box	1½ lbs.					
rice	1 lb.					
flour	1 lb.					
macaroni	1 lb.					
Fats		3¼ lbs.	¾	¾	1	10 oz.
margarine	2 lbs.					
other fats	1¼ lb.					
Sweets		3 lbs.	¾	¾	¾	¾

* At least half whole grain or enriched bread and cereals.

not very active. Their income is adequate for considerable choice within each food group. This liberal income enables the man and his wife to buy cream and to use more fruit, vegetables, eggs,

TABLE 20
FOOD ORDER No. 2

Weekly marketing list for two adults:

A man doing moderately hard muscular work 3500 Calories

A woman who is not very active physically 2000 Calories

Income, liberal Season, late fall Location, North Atlantic States

Foods	Marketing List	Individual		Comments
		Man	Woman	
Milk	10 qts.	5	5	Milk may be any form desired. Cheese may be of any variety.
Cream	1 ½ pts.	1	½	
Cheese	8 oz.	6	2	
Vegetables—Fruits				
potatoes	7 lbs.	5	2	Quantity of potatoes for the man increased for extra energy.
green-yellow	5 lbs.	3	2	
citrus fruit and tomatoes	5 lbs.	2 ½	2 ½	Out-of-season fruits and vegetables may be included if desired.
other fruits and vegetables	5 lbs.	3	2	
Eggs	1 ½ doz.	7	7	Amount includes some for cooking; quantity in marketing list in a purchasable quantity.
Meat—Fish—Poultry	8 ½ lbs.	4 ½	4	Any kind desired, including roasts and chops.
Bread—Cereals—Other Grain Products	7 lbs.	5	2	Bread and cereal allowance for the man high to provide extra energy.
Fats	2 ¼ lbs.	1 ½	¾	Butter, olive oil, margarine lard, bacon, or other fats.
Sweets	1 ¼ lbs.	¾	½	Buy in 2- or 5-pound bags as needed.

meat, fish, poultry, and fats than Table 18 indicates as a desirable minimum. The man's high caloric need is met, in part, by increases in these health-protective foods while the rest is supplied through generous amounts of potatoes, bread, cereals,

other grain products, and fats. The comparatively inactive life of the woman calls for a reduction in these high caloric foods, even below the amounts given in Table 18.

PURCHASABLE QUANTITIES. In any marketing list, all foods should be stated in purchasable amounts. In Food Order No. 1, for instance, the sum of the amounts of sugar as indicated for the various members of the family in Column III is two pounds and fourteen ounces, a very inconvenient and doubtless impossible amount to buy. The nearest purchasable quantity is three pounds, the amount recorded in the marketing list in Column II.

Economies

The amount that can be spent for food will depend on the total income. Economies should come when necessary through careful selection within each food group, not by reducing the amount of food purchased. The housewife, for instance, who must feed her family on a limited amount of money will usually find several kinds of milk available, all of which are equally nourishing, but some are cheaper than others. It will help to keep her food costs within a limited amount if she buys the one that costs least.

The following points with regard to each food group may show how economies may be made in food purchasing.

Economies in Buying Milk

FORMS AVAILABLE. A mother who uses only one kind of milk may find it worth while to inquire about other kinds in the markets and compare costs to see whether she can reduce her milk bills by substituting a cheaper form for all or part of the milk she is using. Since costs vary throughout the country, only someone who knows the local situation can tell which milk in any given city or town will give the best return for the money spent.

The following forms of milk are on the market and the way in which they are grouped shows which are equal in food value and are, therefore, interchangeable.

A—Plain Whole Milk

Fresh whole milk
Dried whole milk
Buttermilk (cultured)

Homogenized milk
Certified milk
Others may be carried in local markets.

B—Whole Milk with Additional Vitamin D

Fresh milk reinforced with vitamin D
Evaporated milk reinforced with vitamin D
Homogenized vitamin D milk

C—Milk from Which Cream Has Been Removed; these have practically no vitamin A or fat

Fresh skimmed milk
Dried skimmed milk
Buttermilk

POINTS TO CONSIDER:

Is the milk supply protected by local, county, or state regulations? Does the bacterial count of any milk on sale in the area make it unsafe for use? Is there risk involved in using any milk available, however inexpensive it may be?

Evaporated milk is homogenized. Compare the cost of evaporated milk reinforced with vitamin D with the cost of homogenized milk.

Skimmed milk plus food sources of vitamin A and fat may be more economical than fresh whole milk.

Dried milk has a low bacterial count. It has only to be mixed with water to make it ready for use.

One pound of dried whole milk makes $3\frac{1}{2}$ quarts of liquid milk. For 1 quart of milk, use $\frac{3}{4}$ c. of dried milk to 4 c. water.

One pound of dried skimmed milk makes $4\frac{1}{2}$ quarts of liquid milk. For one quart of milk, add $\frac{3}{4}$ c. of dried milk to 4 c. water.

Evaporated milk is sterile. One tall can of evaporated milk plus an equal amount of water makes just under one quart of liquid

milk. Twelve tall cans of evaporated milk are equivalent to 10 quarts of fresh milk.

Evaporated milk should not be confused with condensed milk.

An adolescent or adult may prefer cheese for part or all of his milk quota. Whole milk cheese is a good substitute for milk but pot or cottage cheese is low in calcium.

Equivalent: 1 oz. American whole milk cheese=1 glass of whole milk

Milk purchased by the pint is expensive. For a person living alone, it is more economical to buy a quart every other day if facilities for keeping it from spoiling are available. If a family needs $4\frac{1}{2}$ quarts daily, it is cheaper to buy 4 quarts one day and 5 the next.

Economies in Buying Vegetables

SELECTION. The choice of vegetables will be influenced by varieties available, some cities and towns offering a greater assortment than others. Families living in rural areas where selection may be limited because of distances from wholesale markets and lack of transportation facilities, may have their own supply of canned, dried, and frozen vegetables from which to choose. While vegetables taken from one's own supply will not enter into the cost of the family food, they should appear in a food order as a guide to the quantity of vegetables the family needs for health protection.

POINTS TO CONSIDER:

A variety of vegetables should be used from day to day.

Vegetables in season are usually least expensive.

Canned vegetables should be used when fresh vegetables are expensive or scarce. The cheapest are beets, carrots, corn, pumpkin, peas, spinach, string beans, and tomatoes.

The grade of canned vegetables refers to flavor and appearance, not food value. In canned tomatoes, Grade C is the best invest

ment; tomatoes are broken, otherwise good. In other canned vegetables, Grade B is usually best for ordinary use.

Frozen foods are usually expensive but there is no waste. In considering their economy, compare the number of servings and

VEGETABLES GROUPED ACCORDING TO "EXCHANGEABILITY"

Green Vegetables (3 to 5 servings per pound)		Yellow Vegetables (3 or 4 servings per pound)	
beet greens	milkweed	carrots	
broccoli	mustard greens	pumpkin	
Brussels sprouts	nettles	squash, yellow	
cabbage	peppers, green	sweetpotatoes	
chard	okra	yams	
chicory	romaine		
collards	scallions	Vegetables to Serve Raw	
escarole	sorrel	carrots	parsley
dandelions	spinach	cabbage	peppers
dock	string beans,	cauliflower buds	radishes
kale	green	celery	romaine
lamb's quarters	turnip tops	endive	spinach, young
marsh marigolds	watercress	escarole	turnips
(cowslips)	any other edible	lettuce	watercress
	green vegetable	onions, young	
Other Vegetables (3 or 4 servings per pound)			
asparagus	cippolini (re-	onions	salsify
beans, Lima*	sembling	parsnips	squash, white
beans, shell	chives)	peas*	flesh
beets	eggplant	plantain	turnips
cauliflower	kohlrabi	(resembling ba-	zucchini
chayote	leeks	nanas)	
corn	malangoes		
	(a root)		

* Two or three servings per pound.

the cost per serving from a box or package of the frozen product with the cost per serving of a fresh vegetable.

When buying fresh vegetables with edible leaves, such as beets and kohlrabi, those with fresh tops which can be cooked

and served with the vegetable, or cooked and served separately, should be selected.

Dried beans, peas, and lentils give excellent value for the money spent for them.

If plans must be changed while shopping, it is well to select as a substitute another vegetable similar in food value to the one originally planned.

Economies in Buying Fruit

A GENEROUS ALLOWANCE. The Food Guide does not limit the amount of fruit for either children or adults. In sections of the country where fruit is plentiful and reasonable in price and when income permits, the marketing list may well provide citrus fruit or tomatoes, fresh or canned, once or twice daily for everyone and as much other fruit as desired.

POINTS TO CONSIDER:

Fresh fruit in season is the best investment.

Best sources of vitamin C for the low-cost food budget are canned grapefruit juice, Grade C canned tomatoes, and, in some sections of the country, cull oranges; fresh tomatoes may be economical when plentiful.

Canned and frozen fruits are expensive; their food value is equal to that of fresh fruit.

The standard grade of canned fruit is usually most economical.

Prices of apples and bananas usually bring them within the range of a low-cost food budget.

Prunes give good return for the money spent for them. Prunes numbering "50-70" to the pound are most reasonable in price. Those numbering over "70" have too many pits in proportion to flesh. For those numbering less than "50" to the pound, extra money is paid for appearance.

Dried apricots have no pits; they have good vitamin A value, but they are usually expensive.

Inquiry into the prices of various fruits in any locality is necessary before deciding which fruits are cheapest.

Economies in Buying Eggs

USE LIBERALLY WHENEVER POSSIBLE. The number of eggs to be included in a marketing list will depend chiefly on income and the price of eggs. Requirements for good nutrition may be met with three or four per person per week, but an egg per person daily plus some for cooking is not unusual and is desirable in families that can afford them.

POINTS TO CONSIDER:

Eggs may replace meat as the main dish at dinner. They may cost less per serving.

The price and grade of eggs are no indication of food value.

Brown shelled, white shelled, storage, fresh laid, Grade A, Grade B, and Grade C eggs have the same food value. In some sections of the country, brown eggs cost more than white eggs, elsewhere white eggs cost more than brown, while the price of brown eggs and white eggs is the same in some places.

A cold storage Grade B egg may have a better flavor than a so-called fresh laid egg which has stood in a sunny window or on a roadside stand in the hot sun for a few hours. It is well to try eggs of different grades before making any grade or kind of egg a regular purchase.

It may be advisable to use two grades of eggs, one for cooking and one for the breakfast egg.

Economies in Buying Meat and Fish

There is no general agreement on the minimum and maximum amounts of meat required for good nutrition but since meat is one of the most expensive foods in the food budget, standards for low-cost food budgets usually suggest meat or fish only four or five times per week. Meat can be used daily if one can afford it without neglecting other foods. Meals can be satisfactory in food value without meat, however, if provision is made for the factors which meat supplies most abundantly, protein, iron, and niacin especially.

POINTS TO CONSIDER:

Meat purchases need careful watching to prevent them from crowding vegetables and milk from family meals.

Before making meat purchases, the number of times meat is to be served during the week should be decided. For small meat bills, it is generally recommended that meat be served three or four days a week, fish at least once, with eggs, legumes, or cheese on the remaining days. Nuts also may replace meat to a certain extent.

The food value of meats needing long cooking is equal to the food value of steaks, chops, and other cuts which cook quickly but cost more.

Among the low priced cuts of meat are chuck, neck, and breast of lamb or veal; hamburger, heart, kidney, tripe, and liver from beef, lamb, and pork.

Liver from beef, lamb, and pork is equal in food value to calves' liver and usually costs less.

Ready-cooked meats, including ham, corned beef, and chipped beef, are expensive.

Such fish as cod, haddock, mackerel, flounder, red perch, and whiting are usually inexpensive. They all have practically the same food value.

Oysters, clams, bluefish, salmon, halibut, and shad are expensive but have good food value for those who can afford them or can get them at a reasonable price.

Canned tuna fish and shrimps are expensive.

Canned pink salmon is inexpensive and as nourishing as red salmon which usually costs more.

Frozen fish is of excellent quality and has little waste. Its cost should be compared with the cost of fresh fish.

Economies in Buying Bread, Cereals, and Other Grain Products

Markets carry a large variety of grain products from which any family, regardless of its racial background or individual preferences, can satisfy its taste.

POINTS TO CONSIDER:

Grain products should not replace milk, vegetables, and fruit. At least half of the products used should be whole grain or enriched.

Whole grain cereals, such as oatmeal and dark farina, and whole grain breads, such as whole wheat, dark rye, and dark pumpernickel, are the best investments.

Enriched flour has a food value greater than that of the refined products.

Refined cereals, white flour and white bread, unless enriched or fortified, contain practically no health-protective qualities. The greater the need for economy, the more important it is to use whole grain and enriched products.

Brown rice is richer in food value than white rice.

Home-cooked cereals usually cost less than those ready to eat when purchased.

Cornmeal, oatmeal, and rice are sometimes lower priced when purchased in bags or in bulk than the packaged varieties, but when bought in this form they should be purchased only at clean stores.

In some cities day-old bread is sometimes cheaper than fresh bread.

Breads on the market having a special appeal because of flavor or texture are usually expensive with no additional food value. Trade names may mean an increase in cost with no increase in food value.

Fancy packages increase cost but not food value.

Crackers, cakes, cookies, doughnuts, and sweet buns are expensive when purchased ready to eat.

Economies in Buying Fats

FATS SHOULD NOT BE USED TOO FREELY. Even though cream and bacon were not mentioned in the Food Guide, there was no intention of excluding these very good foods if they can be pur

chased at a reasonable price or if one has the money to buy them at a higher price. Certain reservations need to be observed in buying all fats, even though the food budget will allow their abundant use. They should not be used so freely as to increase weight beyond a desirable limit. Neither should they be used so freely as to displace milk, fruits, or vegetables. Nor should they be used too freely by those whose digestion is slow. They should not be given to children in large amounts.

POINTS TO CONSIDER:

Tub and roll butter cost less than print butter.

Fortified margarine has good food value. It costs less than butter and may be used in place of it.

Cream, bacon, and olive oil are expensive. Psychologically, olive oil and sour cream may be essential for some racial groups, even though they are expensive. Undiluted evaporated milk thickened with lemon juice or vinegar may be acceptable as a substitute.

Peanut butter has a high nutritive value and makes an excellent spread for bread in place of butter.

Economies in Buying Sweets

Sweets include sugars, molasses, sirups, honey, jellies, jams, and marmalades. Availability and cost will determine which are the best investments. Sorghum, the most desirable from the standpoint of food value, is found only in certain sections of the country. Molasses, one of the best of sweets because of its iron content, is usually available in city markets. These two sweets, sorghum and molasses, may be used freely, provided they are used in addition to milk, fruits, and vegetables and do not dull the appetite for these foods.

Maple sugar and maple sirup have a food value slightly higher than white sugar but are usually expensive. Honey is a desirable sweet in small quantities when it can be purchased at a low price, as is sometimes possible in sections of the country where

it is produced. Commercial jams, marmalades, and jellies are expensive for the food value contained.

A POINT TO CONSIDER:

No sweet has such good food value as to justify its abundant use.

The Use of a Food Order in Rural Areas

NATIVE FOODS. Families who live in rural areas often suffer from malnutrition and deficiency diseases because they are unable to buy all the foods listed in the food order. Either they do not have the money with which to buy or the foods are not to be bought in the locality in which they live. Such families may be encouraged to use the many wild greens, such as dandelions, milkweed, marsh marigolds, and dock, some of which are usually found growing in the fields or along the roadsides in most communities during spring and early summer. They probably will need no urging to pick wild strawberries, raspberries, blueberries, and blackberries if they grow in the vicinity.

In addition to foods that grow wild, if land is available, families with a scanty food supply should be encouraged to plant a garden from which they can gather their own vegetables during the summer and until frost comes. Such vegetables as beets with their tops for greens, peas, cabbage, spinach, chard, carrots, string beans, shell beans, tomatoes, and potatoes are some of the vegetables that are easy to grow and will help to provide the health-protective factors so greatly needed.

Families should be encouraged to raise and process enough of the vegetables that are suitable for processing to last through the late fall, winter and early spring. Navy or other shell beans should be dried as a source of protein and other factors. Tomatoes should be canned, while cabbage and potatoes should be stored in abundance if storage space with temperature above freezing is available. Tomatoes, cabbage, and potatoes may be

the chief sources of vitamin C (ascorbic acid) during the winter if citrus fruit is not available or is too expensive.

Possibly a family may be urged to add each year a few strawberry plants, a currant bush, or some raspberry vines so as to build up a supply of fruit, some of which may be canned for winter use. Cows and chickens are often too expensive to feed properly, especially during the winter, but a goat and pigs may be possible and less expensive. The pigs can be fed during the summer and killed in late fall to supply some meat and lard. Doubtless each locality will have its own possibilities and recommendations have to be adapted to conditions in any given situation.

THE FOOD ORDER. A food order prepared from Table 18 will be useful in guiding families in the choice of vegetables to produce, and a weekly vegetable order multiplied by fifty-two will give the needs of a family for a year. Such a list will serve as a guide to the quantity of vegetables the garden should supply. The amount to process for winter use may be determined by multiplying the weekly vegetable list by the number of weeks when the garden will not be producing.

Calculations for vegetable planting should be generous to guard against the inroads of weather and of insects on the yield. In estimating the amount to be processed for winter use, allowances should be liberal to cover possible guests, church functions, and other social gatherings.

Food Budgets from Another Angle

DIVIDING THE DOLLAR INTO FIFTHS. A simple method sometimes used to arouse interest and to stimulate an increase in the use of health-protective foods is a division of the food dollar into fifths. This method suggests that one fifth of every food dollar be spent for each of five groups of food, namely: milk and cheese, meat, fish, and eggs; vegetables and fruit; bread, cereals, and other grain products; and other foods, including fats, sweets, tea, coffee, and condiments.

This plan is based on the assumption that adults who refuse to think of quarts of milk and servings of vegetables in relation to their health may be persuaded to use them if the approach is made through the food budget and the amount of money to be spent for each type of food.

The method does not apply to, nor should it be used in, families with children, for it seldom supplies enough milk to protect health, especially in families with low incomes. It should be used *only* with adults who have *ample means*, and only when other suggestions fail to appeal or to bring results.

CHAPTER X

MAXIMUM HEALTH PROTECTION FROM FOOD DOLLARS

Food is the largest single item in the family budget. Planning and buying this food is a big business. A family of five eats about three and one-half tons of food each year, or about 135 pounds each week.

Careful selection and preparation of food can increase food value received from food dollars by as much as 50 per cent.

The smaller the amount of money available for feeding a family, the more necessary to get maximum food value for each dollar spent. It is just as necessary to preserve the largest possible amount of nourishment in preparing the food after it reaches the home.

"A PENNY SAVED . . ." Small savings, such as one cent on each quart of milk, five cents on a pound of meat, or two cents on one dozen eggs, are often considered too small to be significant. Those saved pennies, however, often can be used to buy health-protective foods a mother had thought she could not afford. A saving of ten cents every day, sixty cents each week, would provide about a week's supply of green vegetables for a whole family, and in many families savings through careful buying often amount to two or three dollars a week. Other economies are possible through the care and preparation of food in the kitchen.

Only a casual reference can be made to food value in relation to cost in discussing these economies because of the wide variation in prices throughout the country and the rapid changes in prices from season to season. In some instances, however,

methods will be given whereby local prices may be applied in determining which of several foods will be the best investment in a given community at any given time.

The Milk Bill

CHOOSING THE BEST INVESTMENT. A housewife who wants to keep her milk bills as low as possible, yet give her family as much milk as the various members should have, need not hesitate to buy the least expensive form, provided it meets standards set up by the local, state, or federal boards.

While it may be cheaper to carry milk home from the market instead of having it delivered at the door, it would be better to pay the cost of delivery than to deprive the family of milk because the quantity needed was more than the shopper could carry. Milk costs less when delivered in large containers holding two quarts each instead of one. Several cents may be saved by using vitamin D evaporated milk instead of homogenized vitamin D milk—they are equal in food value. Evaporated milk is usually cheaper than fresh milk. The use of dried milk, skimmed milk and buttermilk in place of part of the fresh milk will help in reducing milk bills.

Three cents saved daily on each quart of milk would mean a yearly saving of over thirty-two dollars for a family using three quarts each day. This may seem like a small sum, yet when added to similar savings on other foods, the total is often a very substantial percentage of the entire food budget.

INFLUENCE OF LIGHT. Idaho and North Carolina Experiment Stations have shown that care of milk in the home influences its nourishing qualities. For instance, milk left standing in a bright light, either out of doors or in a window, or even in a bright kitchen, may lose as much as 50 per cent of its riboflavin within two hours. This is a serious loss because milk is one of the chief sources of riboflavin, one pint providing one half of the day's requirement for an adult.

BUTTERMILK AND SKIMMED MILK. Buttermilk and skimmed

milk are convenient forms of milk, provided other foods which contain the factors that have been removed with the cream are also used. Any one of these foods will add as much of the missing vitamin A as a quart of whole milk would have supplied:

1½ oz. butter, or 3 tbsp.

⅓ oz. liver

½ tbsp. of a good grade of cod liver oil

1 oz. of a dark green vegetable, or 2 tbsp. cooked.

Only by considering local prices can one tell whether skimmed milk plus these additions will be cheaper than whole milk.

CHOCOLATE MILK PREPARATIONS. Chocolate milk preparations are often given to increase the amount of milk children will take, but since many, if not all of them, are made with skimmed milk, anyone who takes a considerable part of his daily milk quota in this way is getting less vitamin A than whole milk would have provided and needs additional sources.

Chocolate milk is easily and more economically made at home by adding cocoa sirup to fresh whole or evaporated milk, in which case vitamin A will be supplied in the milk. Because of the stimulating effect of cocoa and chocolate, however, they should not be given regularly to children, especially those who are easily excited.

Some Questions About Milk

Is it cheaper to use vitamin D milk or to supplement fresh whole milk with cod liver oil?

The answer to this question will be found by comparing the local cost of:

1 quart of vitamin D milk
with

1 quart of plain fresh whole milk plus one teaspoonful of cod liver oil.

Can expense be saved by omitting cod liver oil when vitamin D milk is given to children?

One teaspoonful of a good cod liver oil contains about twice as much vitamin D as a quart of vitamin D milk. In addition,

cod liver oil contains much more vitamin A which adds health insurance for the children. Since a teaspoonful of cod liver oil costs less than the additional amount paid for the vitamin D milk, it would be cheaper to give plain milk plus cod liver oil.

Is condensed milk an economical sweetening for coffee?

One can of condensed milk contains nearly one-half pound of sugar. The difference in cost between a tall can (14½ oz.) of evaporated milk and the cost of a can of condensed milk of approximately the same size is the amount paid for the half-pound of sugar in the condensed milk. Evaporated milk and sugar may be cheaper for coffee than condensed milk.

Buying and Preparing Vegetables

FRESH AND CANNED. Fresh vegetables are least expensive during the growing season but commercially canned vegetables are often cheaper during the winter, especially in sections of the country where costs are increased by transportation charges or where the quantity of fresh vegetables that can be brought in from warmer climates is limited by transportation facilities. Commercially canned beets, carrots, corn, peas, pumpkin, and tomatoes give the best return for the money spent for them while all kinds of home-canned vegetables are good investments and families are fortunate if they have them on their shelves.

Fresh and canned vegetables have practically the same food value per pound of edible material and a comparison of costs per serving is the simplest method for deciding whether it will be cheaper to buy fresh or canned vegetables when both are in market. Only vegetables of a similar composition should be compared. Information about exchangeability of vegetables and the number of servings per pound of fresh vegetables is given in Chapter IX. These figures will help in calculating the number of servings per can of vegetables:

One-half cupful is a fair sized serving of canned carrots, corn, peas, pumpkin, and tomatoes. Three small beets make a fair serving.

No. 2 can holds 2¼ cupfuls

No. 2½ can holds 3¼ cupfuls

Cost and Food Value of Canned Vegetables

Canned vegetables contain no waste when the liquid is used, either with the vegetable or in other ways. The liquid has valuable minerals and vitamins that have dissolved from the vegetable.

Commercially canned vegetables may be higher in food value than the same vegetable carelessly cooked at home.

Maximum food value will be preserved if vegetables are heated but not boiled, and served at once. This does not apply to home-canned vegetables which should be brought to the boiling point to prevent any possibility of botulism.

Vitamins will be lost if cooked vegetables are allowed to stand in a warm place for any length of time.

The price of a canned vegetable bears no relationship to its food value. Price is based on such factors as uniformity in size, age, tenderness, and appearance.

Grades B and C are most economical and useful for all general purposes.

Special and fancy packs are usually expensive, the cost being dependent chiefly on the size and appearance of the product.

Highly advertised brands are usually, though not always, more expensive than less well advertised products.

FROZEN VEGETABLES. Frozen vegetables are usually more expensive than the fresh or canned but a mother who works outside the home and has to economize in time as well as money may think the extra convenience outweighs the added expense. To get maximum food value from frozen vegetables: Foods should be kept frozen until ready to use, then plunged into boiling water and boiled gently for the length of time stated on the label. Frozen vegetables cook in from one half to three fourths of the time required to cook fresh vegetables.

Dark Green Leaf Vegetables

Since a family will get practically the same amount of health protection from beet greens, kale, mustard greens, and all other dark green leaves, the one that costs least on any given day is

the best one to buy. A mother may even get a dark green leaf vegetable for almost nothing if she selects beets, kohlrabi, turnips, and other roots with fresh crisp leaves and uses these leaves for a second vegetable. And wild greens that can be gathered from the fields are best of all!

Fresh young carrot tops are better raw than cooked and, when chopped, make a nourishing as well as an attractive garnish for such dishes as creamed vegetables, creamed fish, cream soups, salads, and cottage cheese. In addition to the saving in pennies, economies of this nature help to prevent hidden hungers in both children and adults.

Some Questions About Dark Green Leaf Vegetables

Since the iron in spinach is not well utilized, is there any reason for eating the spinach?

Spinach has such a large amount of iron that even though 50 per cent of it were not available for human nutrition, the remaining 50 per cent would still make spinach an excellent source of iron. This fact should not be held against spinach since a large percentage of the iron in meat also may not be used. In addition to iron, spinach contains so much vitamin A that it is often recommended for this factor alone.

Will a lettuce salad take the place of a dark green leaf vegetable?

No. Even the dark outer leaves of lettuce, the richest portion of the head for vitamin A, will provide only a small amount in comparison with the dark green leaf vegetables. Its low food value makes lettuce an expensive vegetable when it has to be purchased in city markets. Figure 30 shows a comparison of the vitamin A value of lettuce and the average dark green leaf vegetable.

Potatoes

Potatoes are one of the most inexpensive vegetables because of their many contributions to nutritional needs. Even when the price increases during periods of scarcity, they are still good

investments, but must be very carefully prepared to preserve their good qualities.

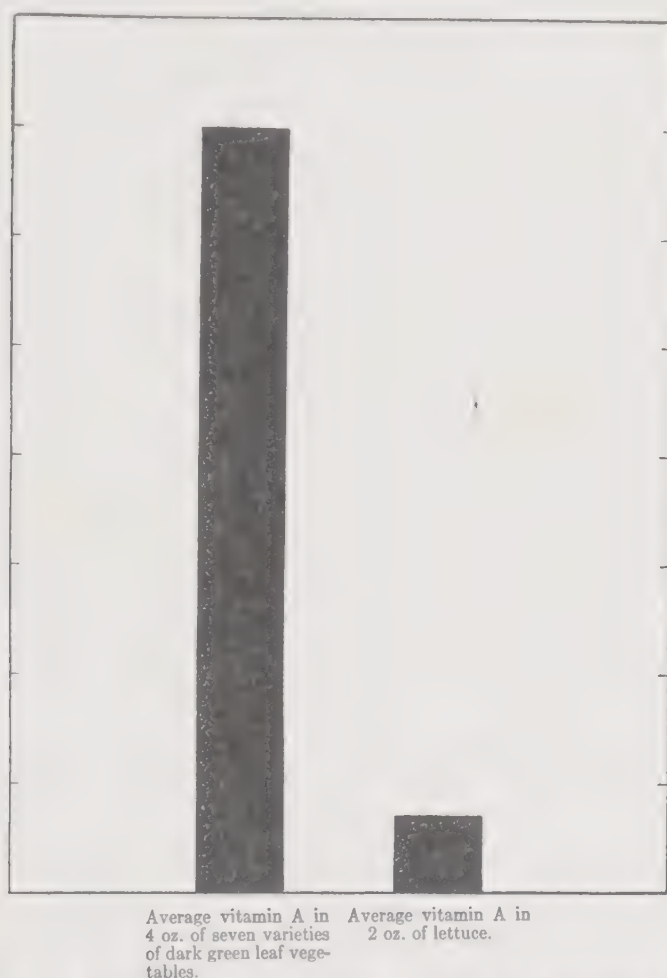


Fig. 30.—A comparison of the vitamin A value of dark green leaf vegetables and average lettuce. Very dark green leaves of lettuce contain more vitamin A than the amount illustrated; bleached leaves contain considerably less. Four ounces is an average serving of a cooked vegetable, 2 oz. of a raw vegetable.

New potatoes have three times as much vitamin C as old potatoes but it may be cheaper to buy old potatoes as long as they

are usable and spend the difference in cost between the old and the new for such foods as cabbage, tomatoes, oranges, and grapefruit juice which will furnish vitamin C more economically.

Preparation of Vegetables

Years ago, the chief concern in preparing food was to make it look interesting and satisfy the family appetite. Today the aim is twofold. Food should be made appetizing; at the same time it should be cooked to preserve a maximum amount of its nourishing qualities.

LOSSES IN VALUE. Unless care is taken in the preparing of vegetables, about half of their good qualities will be lost. These losses occur in several ways. Some destruction of vitamin A and vitamin C will occur if vegetables are allowed to stand in a warm place and wilt. Some of the vitamins of the B-complex will dissolve if vegetables are pared or cut in pieces and allowed to stand in water. There is considerable loss of minerals as well as thiamine and vitamin C when vegetables are boiled, especially if they are pared before cooking. Riboflavin may be destroyed by exposure to light. Air introduced through too rapid boiling may hasten destruction of vitamin C through oxidation. Vitamin C may be destroyed during the mashing and ricing of potatoes. Vitamin C, thiamine, and riboflavin may be unfavorably affected by baking soda. Copper-lined cooking utensils hasten oxidation. Further destruction will take place if food is allowed to stand in a warm place after cooking. Some loss occurs when cooked food stands in the refrigerator.

PRESERVING MAXIMUM FOOD VALUE. A knowledge of the facts just enumerated leads to these recommendations with regard to the care and cooking of vegetables so as to preserve maximum food value:

Use green leaves on the day purchased if possible. Wash them as soon as they come from the market, and put in a tight container in a cool place so they will keep crisp.

Vegetables should not be allowed to stand in water to become crisp, especially chopped cabbage.

Vegetables should be cooked in their skins whenever possible. If vegetables must be pared, it should be done just before cooking. Vegetables should be served as soon as they come from the fire. They should not stand in a warm place.

Vegetables should be cooked in a small amount of water, the kettle covered to exclude air, and cooked only until tender. They should boil gently, without stirring. A copper-lined kettle should not be used if others are at hand.

Maximum food value should be saved by using the liquid in which vegetables are boiled. It may be served with the vegetable, used in soups and gravies, or served as a vegetable cocktail to which tomato juice gives variety.

The green tops of all vegetables should be used with the exception of parsnips. Parsnip and rhubarb leaves contain dangerous amounts of oxalic acid. All left-overs should be used. Even though some of the minerals and vitamins have been lost during the cooking and ice box storage, a very appreciable amount of these factors still remains.

A potato that is pared before it is cooked will lose practically one-half its iron and vitamin C and 60 per cent of its thiamine. This loss is especially serious for those racial groups and families, living in rural areas, who depend largely on potatoes for their ascorbic acid. An adult who eats daily three medium-sized potatoes that are cooked in their jackets will have about 1 mg. more iron every day than if those potatoes had been pared before cooking. Losses in thiamine and vitamin C are proportionately large.

Raw Vegetables

GREATER FOOD VALUE. Because losses occur during the cooking of vegetables, the benefit from eating some raw vegetable at least three or four times a week is clear. Raw vegetables not only furnish more nourishment than cooked, but a smaller amount is needed for good nutrition and this may help to reduce the size of the food bills. For instance, one pound of cabbage served raw will provide each of eight people with 25 mg. of vitamin C

whereas the same amount of cabbage cooked may provide each person with not more than half that amount. To give the same protection that raw cabbage furnishes, it will take twice as much cooked cabbage, which means a higher food bill.

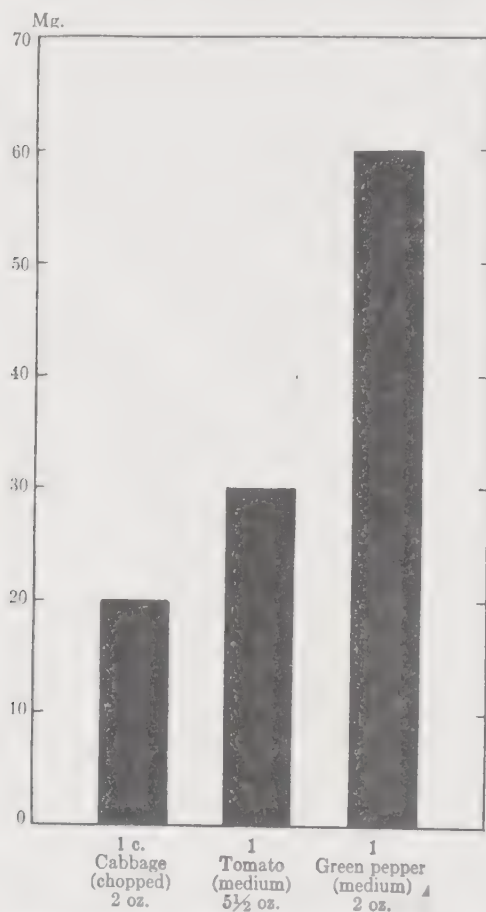


Fig. 31.—Raw vegetables as sources of ascorbic acid. Adult requirement, from 70 to 75 milligrams daily.

Other economical vegetables that may be eaten raw are carrots, yellow turnips, young escarole, romaine, young spinach leaves, green peppers, and onions. In advocating the use of raw vegetables, however, it must be kept in mind that some individuals, either because of age or digestive disturbances, may be un

able to eat them and raw vegetables should be recommended with due caution.

HOME-GROWN VEGETABLES. If a family has a garden in which they raise cabbage, green peppers, and tomatoes, there is no reason why the whole family except the baby should not depend on these foods for vitamin C during the months when these vegetables are gathered fresh from the garden. The use of them will save the expense of oranges and grapefruit—except for the baby. The following figures show how much of these foods will be required to supply all the vitamin C an adult needs for a day. A comparison of these foods as sources of vitamin C is shown in Figure 31.

2 oz. raw cabbage	20 mg. vitamin C
1 medium-sized green pepper (2 oz.)	60 mg. vitamin C
1 medium tomato (5½ oz.)	30 mg. vitamin C

An adult needs from 70 to 75 mg. daily.

Fruit

FRUIT AS A SOURCE OF VITAMIN C. Fruit is often purchased for its appetizing appeal alone, but since the amount of vitamin C in various fruits differs widely, the low-income family needs to select fruit that will give a maximum amount of this factor. These figures show the relative values of common fruits for vitamin C:

VITAMIN C IN COMMON FRUITS

(An adult needs from 70 to 75 mg. daily)

From 5 to 10 mg.

- 1 apple, raw (5 oz.)
- 1 banana (4 oz.)
- 1 peach (3½ oz.)
- ½ c. pineapple juice (4 oz.)

From 15 to 20 mg.

- ¾ c. blueberries (3½ oz.)
- ¾ c. pineapple cubes (5½ oz.)
- 1 tomato, small (3½ oz.)
- ½ c. canned tomatoes (4 oz.)

From 40 to 50 mg.

- ½ medium cantaloupe (10 oz.)
- ½ c. grapefruit juice (4 oz.)
- 1 small orange (5½ oz.)
- ½ c. papaya juice (4 oz.)

50 mg. and over

- ½ medium grapefruit (8 oz.)
- ½ c. orange juice (4 oz.)
- ¾ c. strawberries (5 oz.)

Grapefruit, oranges, melons, papayas, and strawberries stand out as exceptionally high in vitamin C but several of these are very seasonal and usually high in price in cities and towns far from the source of supply. Only the application of local prices can determine what fruits provide vitamin C most economically.

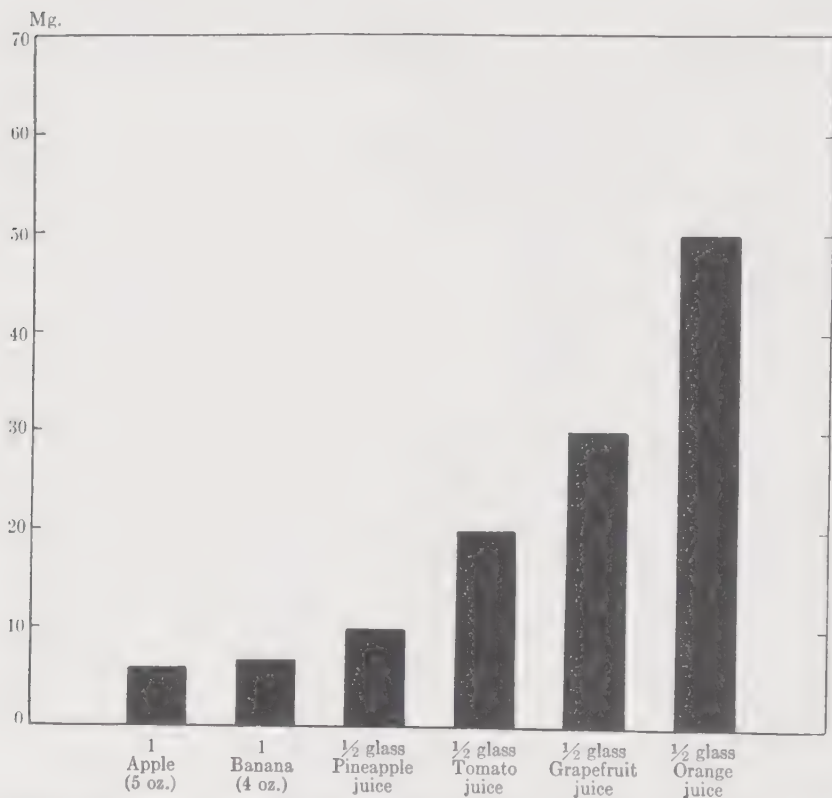


Fig. 32.—Relative value of common fruits for ascorbic acid. Adult daily requirement, 70 to 75 milligrams.

Figure 32 gives a graphic comparison of some common fruits for ascorbic acid (vitamin C).

Preservation of Vitamin C in Fruit. Vitamin C is so easily destroyed during the squeezing, mashing, and cutting of fruit that the vitamin C a family actually receives from its fruit may be considerably less than the fresh fruit originally contained. Whole orange sections have a larger amount of vitamin C than sliced

oranges; sliced oranges than unstrained juice; and unstrained juice than strained juice. Although fewer experiments on other fruits have been reported, it is safe to say that all fruits should be served with as little squeezing and cutting as possible.

COMMERCIAL CANNED FRUITS. Commercially canned fruits have the same food value as fresh fruit but are so expensive that, with the exception of canned applesauce, they have no place in a low-cost food budget.

DRIED FRUITS. Dried fruits are often recommended to increase iron in the diet, but all dried fruits, with the exception of prunes and raisins, are too expensive for low-cost food budgets. Prunes are an economical source of iron and are especially valuable for the baby, who needs 6 mg. daily.

If cost does not have to be considered, dried apricots are excellent for increasing iron, for not only is their iron content high but they contain copper which must be present to make iron useful. Five or six apricot halves will also provide as much vitamin A as a quart of milk, or more. These figures show the comparison of the amount of iron and vitamin A in dried apricots, raisins, and prunes.

Iron and Vitamin A in Three Commonly Used Dried Fruits

	Iron mg.	Vitamin A I.U.
1 oz. dried apricots (5 or 6 halves)	1.4	2100
1 oz. prunes (3 or 4 medium-sized)	0.9	440
½ oz. raisins (1 tablespoonful)	0.5	7

Eggs

PRICE OFTEN MISLEADING. Some mothers think they are depriving their children of some vital element unless they give them the highest priced eggs in the market and others feel the color of the shell imparts some special quality. They find it hard to believe that the price of eggs does not guarantee freshness and in no way indicates food value. All eggs, regardless of the

color of the shell and of freshness, have the same amount of nourishment.

STORAGE EGGS. Eggs from cold storage often have a better flavor than so-called fresh eggs direct from the farm. Changes in freshness begin to take place as soon as an egg is laid and continue rapidly if eggs are left in a warm nest, or are allowed to remain in a warm room, a sunny window, or on a roadside stand. The higher the temperature, the more rapid the changes. As much change in flavor may take place in one week out of storage as during four months in storage. Since eggs may be several days old when put into storage, any lack of freshness noted in these eggs may be due to changes that took place before they went into storage.

GRADE OF EGGS. Likewise eggs that were perfectly fresh when they were graded as A may have become Grade B, or even Grade C, in quality by the time they appear on the family table. Since both price and grade are often misleading, it is safer to buy eggs at a store where there is a quick turnover and then to keep them in a cool, dark place at home. The best return for the money will be obtained from eggs that cost least per dozen and yet are satisfactory in flavor.

Meat and Fish Bills

MUSCLE MEATS. Meat offers one of the most fruitful opportunities for saving, not only pennies but dollars, because of the wide variety in choice and the price of meat cuts. All muscle meats have practically the same nourishing qualities, the advantage, if any, being in favor of the less tender cuts. And these may be made tender and tempting by slow cooking and combining with vegetables and herbs in casseroles, meat loaves, meat pies, and the like. Cooked in these ways, a small amount of inexpensive meat will satisfy the family appetite and help to reduce meat bills.

VARIETY MEATS. Many of the variety meats were little used by the average family until recently but their good qualities

recommend them for more general use. Their food value is high and their cost is usually low but local prices must be compared to determine their relative economy. These figures show how these meats compare with lean meat as sources of protein, iron, and vitamins.

Comparison of Muscle Meat with Some of the Variety Meats

	<i>Amount</i>	<i>Protein gm.</i>	<i>Iron mg.</i>	<i>Vitamin A I. U.</i>	<i>Thiamine mg.</i>	<i>Riboflavin mg.</i>
Muscle, lean	4 oz.	18	3	0.11	0.1+
Heart	3 oz.	14	5	0.46	0.8
Kidney	3 oz.	17	7	800	0.40	2.0
Liver	3 oz.	17	10	8800	0.23	2.4

Tongue and tripe are also recommended but incomplete figures as to food value do not permit satisfactory comparisons here.

When liver is prescribed for a special diet, or for the baby, calves' liver may come to mind, but liver from beef, pork, and lamb is equally good and often costs much less in most sections of the country.

READY-COOKED MEATS. When there is a large family and several lunch boxes to pack, one can hardly blame the housewife for buying cooked meats occasionally for sandwiches. Liverwurst, bolognas, and other sausages are often inexpensive enough to make them economical for this purpose, provided they are all meat, not filled largely with cereals.

Cooked corned beef, roast beef, and ham are expensive, often costing three times as much as uncooked meat. Even though a mother buys such a small amount that she spends not more than five cents more than she would have spent for less expensive meat, it is the sum total of these daily five cents that causes a mother to feel she cannot afford other very essential foods. Sandwiches from home cooked hamburger would save the five cents and make it available for other foods.

A mother may cream a quarter of a pound of dried beef and feel she has an inexpensive as well as a satisfactory meal for her family of four or five but nourishment must be considered as well as cost. While a quarter of a pound of dried beef will furnish

approximately 40 grams of protein, the family could have about 75 per cent more from one pound of hamburger at practically the same cost. While the use of dried beef occasionally is not to be criticized, the illustration serves to show how the amount of nourishment a family receives may be reduced without being apparent to the individual.

CHICKEN. Many mothers who buy chicken once a week feel it is not expensive because they use the bones with vegetables and cereal to make a hearty soup for another meal. Chicken is expensive when purchased in most city markets because it provides so little nourishment in proportion to cost. Since the chicken bones yield little except flavor, the second meal is going to be low in protein unless supplemented with another protein food which means extra expense. In weighing satisfaction received against expense involved, it is necessary to decide how frequently the individual family can afford to sacrifice other foods for the sake of the chicken.

CANNED FISH. The question is frequently asked if sardines, tuna fish, and canned salmon come within the limits of the low-cost food budget? The answer for most parts of the country is that sardines should be used only occasionally if economy is essential, but on the West Coast pilchards are a good investment and in some sections of the country canned mackerel is used extensively. Salmon and tuna fish are generally inexpensive. All brands of salmon are equally nourishing, the less well advertised usually being cheapest. Pink salmon is the best investment.

Bread, Cereals, and Other Grain Products

ENRICHED BREAD AND FLOUR. When a mother goes marketing for bread, cereals, and the like, she will get most nourishment for her money by buying whole grain and enriched products, even though they may cost slightly more than the refined products. Enriched bread with its added iron, thiamine, riboflavin, and niacin costs no more than white bread without these additions, but since the former does more to improve the health

of the individual, it really is less expensive than white bread which has not been enriched.

Enriched bread and flour came into use as a war measure to increase the efficiency of the worker. They have been of such appreciable value that it is very desirable to continue their use. There are three ways in which this may be done:

Federal legislation may extend the measure.

State laws may make enrichment compulsory within the borders of the state in which the law is passed.

Voluntary action may be taken by millers and bakers.

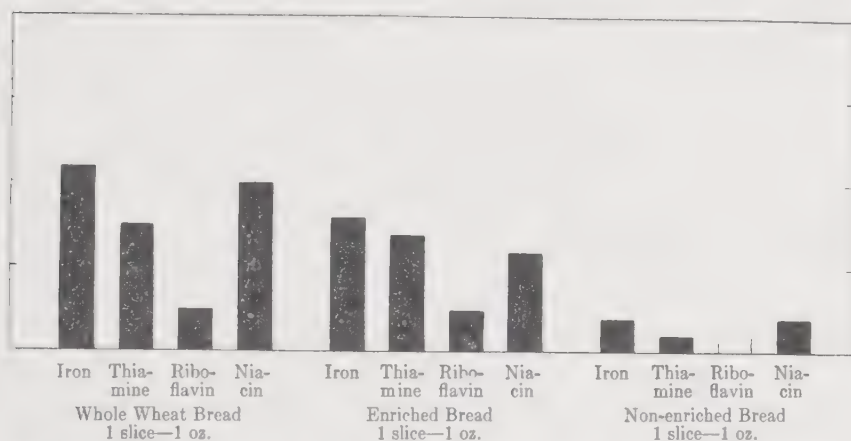


Fig. 33.—A comparison of the iron and vitamin values of whole wheat, enriched and non-enriched white bread.

Many states already have passed the necessary laws, some of the Southern states extending the measure to cover hominy and hominy grits. It is to be hoped that all states will take similar action soon. Public opinion can do much to influence the adoption of such measures as are necessary to make enriched flour and enriched bread available for everyone. Figure 33 shows the comparison of the food value of white bread which has not been enriched with that of whole wheat and enriched bread.

READY-TO-EAT CEREALS. Ready-to-eat cereals are deceptive because their bulk makes a cupful seem like a feast while it weighs only about half as much as the dry cereal used in preparing an

ordinary dish of a home-cooked cereal. This means that a serving of a ready-to-eat cereal contains only about half as much nourishment as a serving of a home-cooked cereal.

The size of the box in which ready-to-eat cereals are purchased also makes a shopper think she is getting a bargain, but a comparison on the basis of cost would show that an ounce of a ready-to-eat cereal usually costs more than an ounce of a cereal which has to be cooked.

SWEET BAKED GOODS. Sweet buns, cakes, doughnuts, and other pastries are popular because they are handy for breakfast, lunch, and desserts but they cost too much for the nourishment provided—a very important point when maximum health protection must be obtained from food dollars. A mother may want to please a child who loves the crunchy texture of crackers by serving them for in-between meal snacks, but crisp whole wheat toast would be far better for the child and would cost less. While the cost of one box of crackers may seem small in comparison to the ease of serving them, it is the cost of several boxes added to other non-essentials which cause leaks in the food budget.

Some Questions About Rice and Macaroni

Since rice and macaroni are usually cheaper than potatoes, why not use them regularly in low-cost meals?

In spite of the difference in cost, potatoes are so much more valuable than white rice and macaroni that the potato is a better investment. Potatoes are richer in iron and thiamine than either rice or macaroni and contain a fair amount of vitamin C which is in neither of the other products. This does not mean that rice and macaroni should not be used—only that they are not substitutes for potatoes.

Since potatoes are such an excellent food, why not urge the racial groups that use rice and macaroni in such large amounts to eat potatoes instead?

Three things must be considered in discussing food with any

family—its nourishing qualities, its cost, and its place in the life and background of the family. Macaroni is a tradition with Italian families as is rice with Puerto Ricans. Since these families would be very unhappy, possibly emotionally upset, if it were suggested that they substitute potatoes for their own racial custom, it seems more reasonable to urge the use of dark green leaf vegetables as supplements to the rice and macaroni.

Butter and Other Fats

BUTTER AND MARGARINE. Families prejudiced against any fat except butter as a spread for bread may find these facts of value:

Butter may have 15,000 I. U. or more of vitamin A per pound during spring and summer when cows are eating green grass, but it may have less than this amount during the winter. The all-year average is given as 15,000 I. U.

Most margarine is fortified with vitamin A. Fortified margarine can be depended upon to contain not less than 9000 I. U. of vitamin A per pound throughout the year and the trend is to increase the amount to 15,000 I. U. per pound. Vitamin value will be given on the package.

Margarine usually costs much less than butter. The use of margarine will mean a substantial saving.

Tub butter is less expensive than print butter. Salted butter costs less than unsalted butter.

Butter that is purchased a quarter of a pound at a time often costs three or four cents more.

OTHER FATS. Lard and suet make better biscuits and some other baked goods than butter and are less expensive. Even though they contain no vitamin A, it is wiser to use them in cooking for the sake of economy. If drippings are saved from all meats and used in cooking, the economy is even greater.

Some racial groups use fat from bacon, pork, and other sources as a spread for bread, a custom that need not be discouraged, even though these do not contain vitamin A. Instead, these

families should be urged to rely on such foods as liver, green leaf vegetables, and yellow vegetables for vitamin A. All children should have fish liver oil.

OLIVE OIL. A pint of olive oil may be no more expensive than a pound of butter but olive oil often becomes an expensive item in the food budget when it is used for all kinds of cooking, especially deep fat sautéing. In this way, families are likely to use more oil than the low-income food budget can stand. This is especially true when imported oils are used. In recent years, families of foreign parentage who feel that the flavor of imported olive oil is essential to make meals appetizing have been adding a small amount of olive oil to the salad oils produced in the United States and have found the resulting product very acceptable as well as an economy measure.

Sweets

None of the sweets is economical as food but when children—and adults—crave something sweet, molasses and sorghum should be selected whenever possible. One tablespoonful of pure molasses will provide about one eighth of the amount of iron an adult needs each day. This amount is easily supplied in a serving of such foods as gingerbread, ginger cookies, molasses pudding, and molasses sauce. It is well to use it in place of sugar. Sorghum may be obtained in certain sections of the country but is not generally available.

SUBSTITUTES FOR SUGAR. Both sugar and corn sirup supply calories inexpensively but neither contains minerals and vitamins and so can hardly be classed as economical foods. Maple sirup has a fair amount of vitamin A, honey has a trace of thiamine, and jams and jellies may have small amounts of vitamin C, but all are expensive when purchased. When necessary to use them in place of sugar, the one which can be purchased at least cost is the best selection.

Corn sirup, honey, maple sirup, or molasses may be substituted

for sugar in any recipe for baked goods, such as cakes and cookies, with these changes in the proportion of ingredients:

FOR EACH CUP OF SUGAR CALLED
FOR IN THE RECIPE, SUBSTITUTE:

OTHER CHANGES NECESSARY:

1 cupful corn sirup

Reduce liquid by $\frac{1}{8}$ cupful for each cup of sirup used.

$\frac{3}{4}$ cupful honey

Reduce liquid by $\frac{1}{4}$ cupful for each cup of honey used; add $\frac{1}{4}$ tsp. soda.

1 cupful maple sirup

Reduce liquid by $\frac{1}{4}$ cupful for each cup of maple sirup used; add $\frac{1}{4}$ tsp. soda.

1 cupful molasses

Reduce liquid by $\frac{1}{4}$ cupful for each cup of molasses used; add 1 tsp. soda for each cup of molasses and reduce baking powder by 3 tsp. for each teaspoonful of soda added.

Basic Equipment for Preparing Meals

PROPER EQUIPMENT ESSENTIAL. Many a child is pale and thin, no doubt, because his mother does not have the proper equipment for preparing the right foods in a satisfactory manner. Adequate cooking equipment is almost as essential as the food itself.

It is futile to ask a mother to prepare greens for the family when she has nothing larger than a two-quart pan in which to cook four or five quarts of spinach. Her attempt to make gingerbread is almost sure to be a failure unless she has a measuring cup and a pan in which to bake it. It will be practically impossible to make a cornstarch pudding or a soft custard without a double boiler. Some improvising is usually possible in overcoming some of the obstacles, such as using one pan inside another in place of a double boiler, but the two pans must be at hand. The following list will help in determining whether a mother has proper tools for feeding her family satisfactorily:

Convenient Kitchen Equipment

An oven that bakes

1 saucepan with cover (4 to 6 qt.)

1 saucepan with cover (1 qt.)

1 double boiler or saucepan (2 qt.)

1 deep enamel roasting pan

or

frying pan

1 baking pan

1 baking dish

1 coffee pot

1 paring knife

1 butcher knife

1 utility fork

2 tablespoons

1 mixing spoon

1 can opener

1 measuring cup

1 mixing bowl (small)

1 mixing bowl (large)

1 egg beater

1 strainer

1 vegetable brush

1 dish pan

1 sugar can

1 flour can

1 bread box

1 garbage pail or container

CONVENIENT ADDITIONS

1 potato masher

1 vegetable grater

1 colander

1 spatula

1 bread board

1 teapot

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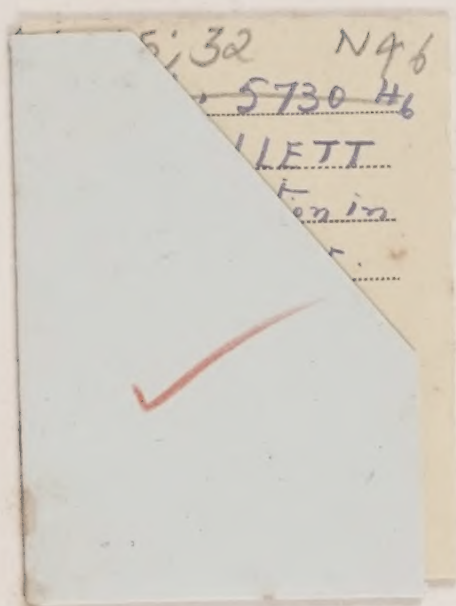
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